

# DisplayMaker Legacy 72S, 72SR

## User Manual

Part Number 0700022F



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[www.hp.com/go/graphicarts](http://www.hp.com/go/graphicarts)

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## Revision Log

The following is a list of major changes and additions that have been made to this manual since the previous revision.

See the accompanying *Release Notes* for specific changes to the software and hardware between manual updates.

Revision	Description
Revision E	<p><b>Chapter 1:</b> Turnbuckle installation added. Grounding tests added. Print pausing added.</p> <p><b>Chapter 2:</b> Menu items added. Menu tree updated.</p> <p><b>Chapter 3:</b> “Left Only” print modes changed to “Unidirectional.” Edge-to-edge printing added. Saran Wrap replaced with SolaChrome Capping Film.</p> <p><b>Chapter 4:</b> “Hard” and “soft” jetouts documented.</p> <p><b>Chapter 5:</b> Stopcock on waste ink tube added. Cleaning doctor blade added. Cyan Heads Maintenance function documented.</p>

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## Regulatory Statements

### FCC-A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

This equipment must be installed exactly as instructed in this manual using only the components supplied. If a supplied component ever needs to be replaced, it must be replaced with the same part supplied by the manufacturer. It is your responsibility to follow these instructions in order to maintain compliance with the FCC regulations. Changes or modifications not expressly approved by ColorSpan Corporation could void your authority to operate this equipment. In particular, this device must be operated with shielded cables to maintain FCC compliance.

A booklet is available from the Federal Communications Commission entitled, *How to Identify and Resolve Radio-TV Interference Problems* (#004-000-00345-4). Write to the U.S. Government Printing Office, Washington, DC 20402.

### DOC (Canada)

This digital apparatus does not exceed the Class A limits for radio noise for digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Normes de Sécurité (Canada)

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe A prescrites dans le règlement sur le brouillage radioélectrique édictés par le Ministère des Communications du Canada.

## Telecommunications Network Statement



The ColorSpan VideoNet port on this device is not intended to be connected to a public telecommunications network. Connection of this device to a public telecommunications network in a European Community Member State will be in violation of national law implementing Directive 91/263/EEC on the approximation of laws of the Member States concerning telecommunication terminal equipment, including the mutual recognition of their conformity.

Der VideoNet port ist nicht dafür vorgesehen an ein öffentliches Telefonnetz angeschlossen zu werden. Der Anschluß dieses Gerätes an ein öffentliches Telefonnetz in einem Mitgliedstaat der EU, verstößt gegen nationale Gesetze zur Ausführung der Direktive 91/263/EEC, die sich mit der Annäherung von Gesetzen von Mitgliedstaaten beschäftigt, betreffend Telekommunikationsanlagen und die gegenseitige Anerkennung ihrer Konformität.

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## About This Manual

Read this manual to unpack, set up, and use the ColorSpan "Gator" digital color printers.

- ◆ **Chapter 1, Getting Started**, shows you how to unpack and assemble the printer, and introduces you to its main features.
- ◆ **Chapter 2, Using the Control Panel**, shows you how to use the control panel to specify printer options.
- ◆ **Chapter 3, Ink and Media**, shows you how to install ink and media.
- ◆ **Chapter 4, Calibrating the Printer**, shows you how to calibrate the printer for optimal print quality.
- ◆ **Chapter 5, Maintaining the Printer**, explains scheduled maintenance, how to recover clogged printheads, how to prepare the printer for extended power-down (such as for shipping or storage), and more.
- ◆ **Chapter 6, Print Server Setup**, shows you how to specify ColorSpan print server options.
- ◆ **Chapter 7, Printer Driver Setup**, shows you how to control output options from the client workstation via the ColorSpan printer driver software.
- ◆ **Appendix A, Technical Specifications**, lists the printer's technical specifications.
- ◆ **Appendix B, Troubleshooting**, shows you how to troubleshoot common printing problems and interpret Action and Warning messages.

For further information, refer to the following ColorSpan documentation:

- ◆ *Quick Start Guide* — **START HERE** to set up and install a brand new ColorMark print server, and connect and configure printers to it.
- ◆ *Site Preparation Guide* — explains how to prepare your site for the printer's arrival and installation.
- ◆ *ColorSpan Print Server Documentation* — the *System Control User Guide* and *Printing Tools User Guides* shows you how to print and RIP files through the ColorSpan print server. If the printer is connected to a non-ColorSpan print server (RIP), refer to the documentation that accompanies the server.
- ◆ *Release Notes and Update Notes* — late-breaking information, update descriptions, and update instructions.
- ◆ ColorSpan web site — <http://www.colorsprint.com>.

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## Conventions

This manual uses the following informational conventions:



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**Note** A special technique or information that may help you perform a task or understand a process.

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**Hinweis** Ein Hinweis beschreibt eine spezielle technik zur Lösung einer Aufgabe oder enthält Informationen, die Ihnen eine Prozedur näher erläutert.

---

**Caution** Alerts you to something that has the potential to cause damage to hardware, software, or data.

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**Vorsicht** Dieses Feld weist auf einen Umstand hin, der einen Hardware-oder Software-Schaden oder Datenverlust verursachen könnte.

---



**WARNING** Alerts you to something that has the potential to cause physical harm to you or others around you.

---

**WARNUNG** Eine Warnung auf weist auf einen Umstand hin, durch den Ihnen und anderen Personen ein physischer Schaden erwachsen könnte.

---

Other WARNING symbols used:



**Electrical Hazard**

Vorsicht steht unter Spannung



**Lifting Hazard**

Vorsicht beim Anheben



**Hot Surface**

Heiß, nicht berühren



**Moving Parts**

Bewegliche Teile, Verletzungsgefahr.



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# CHAPTER 1

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## Getting Started

This chapter shows you how to get started using your printer. It includes these topics:

- ◆ Operating Requirements (page 1-2)
- ◆ Unpacking and Assembly (page 1-7)
- ◆ Workflow Overview (page 1-30)
- ◆ Parts Overview (page 1-32)
- ◆ Special Features (page 1-36)

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## Operating Requirements

	<p>Choose a location for the printer before you unpack it. Keep the following requirements in mind:</p>
<b>Electrical</b>	<ul style="list-style-type: none"><li>◆ Use the supplied power cord. Plug it directly into a grounded electrical outlet. Do not lengthen the power cord with an extension cord; the resulting voltage drop could damage the printer.</li><li>◆ Make sure the line voltage meets the requirements: 220 VAC <math>\pm 10\%</math>, 20 Amps, with NEMA L6-20R locking wall receptacle (North America and Japan), OR 220 VAC <math>\pm 10\%</math>, 16 Amps, single phase, with IEC 60309 wall receptacle (Europe). Install a voltage regulator or similar device if the power source is not stable within these specifications. <b>See Appendix A, Technical Specifications, for details.</b></li><li>◆ To maintain vacuum to the printheads during printer power-down, use the auxiliary 24 volt power supply (included in the accessory kit with universal power adapters). Connect the 24 VDC jack on the vacuum/pressure assembly to either of two options:<ul style="list-style-type: none"><li>◆ <b>1. UPS</b> — customer-supplied uninterruptable power supply, output 100-240 VAC, 50/60 Hz, minimum of 15 watts of power, provides battery backup to the vacuum system in the event of a power failure.</li><li>◆ <b>2. Wall outlet</b> — 100-240 VAC, 50/60 Hz, provides temporary power to the vacuum system when it is necessary to power down the printer for service. <b>See Appendix A, Technical Specifications, for details.</b></li></ul></li><li>◆ Connect the print server or RIP to a separate electrical circuit from the printer.</li></ul>
<b>Environmental</b>	<ul style="list-style-type: none"><li>◆ Make sure the room is well ventilated, with a temperature and relative humidity within specifications (see "Specifications" on page A-2). Optimal printing and drying occurs within these ranges.</li><li>◆ The printer uses solvent-based inks. The printer does not include an integrated exhaust hood or shielding for collecting the volatile organic compound (VOC) emissions from the inks and cleaning solvent. The owner is responsible for ventilation and VOC recovery as required by local regulations. Connection kits are available from MacDermid ColorSpan to vent VOC emissions to the customer's exhaust system or VOC recovery equipment. Consult your MacDermid ColorSpan reseller for details.</li></ul>

- ◆ Store media and ink in an area with similar temperature and humidity conditions as the printer.
- ◆ Locate the printer close enough to the print server (RIP) so that they can be connected with the required cable.
- ◆ Locate the printer on a flat, level floor.
- ◆ Locate the printer where its normal operating noise will not disturb quiet work areas.
- ◆ DO NOT install the printer near humidifiers, refrigerators, fans, water faucets, heaters or similar equipment.
- ◆ DO NOT install the printer in areas where the temperature changes abruptly, such as near air conditioners or in the path of direct sunlight.
- ◆ DO NOT expose the printer to flames or dust.

## Important Operating Notes

- ◆ **DO NOT POWER DOWN THE PRINTER.** Constant vacuum at the printheads is required to prevent ink from flowing from the printheads when not printing, even when the printheads are capped. If the printer must be powered down for shipping, empty and cap the printheads (See "Extended Power Down and Restart" on page 5-21) or apply auxiliary 24 volt power (see "Connecting to Power" on page 1-22).
- ◆ If the printer has been idle for more than several minutes, press the Prime Bars button on the printer control panel to check for missing inkjets. To recover missing inkjets, see "Checking Jet Health" on page 3-6.
- ◆ If the printer will be idle for more than one hour, cap the printheads to conserve ink. When the printheads are uncapped and the printer is not printing, the printheads periodically expel a small amount of ink into the excess ink reservoir to keep them working. ("Capping the Printheads" on page 3-11 for instructions.)
- ◆ Refill the ink and cleaning solvent reservoirs only when the Ready-for-Refill LED is on. Refill only with an entire bottle of ColorSpan SolaChrome HR ink or cleaning solvent, and replace the profiler. **USE OF OTHER INKS AND CLEANING SOLVENTS COULD DAMAGE THE PRINTER, WILL REQUIRE A SERVICE CALL, AND WILL VOID THE WARRANTY.** ("Refilling Ink" on page 3-9.)
- ◆ To wipe the printheads, use only ColorSpan cleaning solvent applied with a 100% polyester Class 100 cleanroom wipe. (See "Cleaning Clogged Ink Jets" on page 5-8 for instructions.) **DO NOT USE ISOPROPYL ALCOHOL.**

- ◆ To cap the printheads, use only SolaChrome Printhead Capping Film. Damage to printheads resulting from the use of poorly performing plastic films is not covered by the printer warranty.
- ◆ The maximum diameter allowed on the takeup spool is 7.5 inches (190.5 mm) on a 3-inch core. When the takeup spool has a diameter of 6.5-7.5 inches (165.0-190.5 mm), the control panel displays a warning about possible print quality issues.
- ◆ The media supply may be wound either printed-side-out or printed-side-in, but the takeup, if used, must be loaded printed-side-in.
- ◆ The default head height set to 0.100 inches, which allows wide variety of media thicknesses to be utilized without need to adjust head height. If you do adjust the head height, you should also adjust the camera height and verify the service station height. See "Set the Printhead and Camera Height" on page 5-11 for instructions.
- ◆ The Media Wizard stores a set of operational parameters for predefined and user-defined media types. When you load a new media type, select an existing Media Wizard set, or create a custom set. Media Wizard parameter sets can be selected at any time from the control panel. (See "Media Wizard" on page 3-32 for details.)
- ◆ Enable AutoTune during long periods of unattended printing. AutoTune runs AutoJet at user-defined intervals to ensure that all jets are either working or substituted with working jets. (See "AutoTune" on page 4-4 for instructions.)
- ◆ Wear cotton gloves when loading media to prevent fingerprints that could show after printing.
- ◆ **DO NOT** rest or store a media roll on end, or you could cause edge creases that could strike the printheads during printing.
- ◆ **DO NOT** clean the printhead surfaces with a dry cloth or paper towel.
- ◆ **DO NOT** reprint over any output that has not completely dried. The rubber pinch rollers could be damaged by wet ink. If ink does get onto the pinch rollers, clean them with SolaChrome HR Cleaning Solvent and dry them thoroughly before printing.

- ◆ **DO NOT** set heavy objects on the power cord or printer cable; do not bend the cables or force them into contorted positions.
- ◆ **DO NOT** place heavy objects anywhere on the printer.

## Safety Warnings



**WARNING** WITH THE POWER SWITCH IN THE OFF POSITION, POWER MAY STILL BE SUPPLIED TO THE PRINTER COMPONENTS. To completely cut power from the printer, you must unplug the power cords from the power outlets.

**WARNUNG** WENN DER NETZSCHALTER IN OFF POSITION STEHT, WIRD DEN KOMPONENTEN TROTZDEM STROM ZUGEFÜHRT. Um den Drucker komplett stromfrei zu machen, müssen Sie den Netzstecker ziehen.



**WARNING** The printer is too heavy to be lifted safely by one person. At least three persons are required to lift the printer.

**WARNUNG** Der Drucker ist zu schwer für eine Person. Mindestens 3 Personen sind erforderlich um den Drucker anzuheben.



**WARNING** THE PRINTER ELECTRONICS ASSEMBLY CONTAINS A LITHIUM BATTERY DEVICE. THERE IS A DANGER OF EXPLOSION IF THE BATTERY IS INCORRECTLY REPLACED. The battery must be replaced only by ColorSpan authorized personnel, and must be replaced only with the same or equivalent type. Dispose of this lithium battery device in accordance with local, state (or province), and Federal (or country) solid waste requirements.

**WARNUNG** DIE ELEKTRONIK DES DRUCKERS ENTHÄLT EINE LITHIUM BATTERIE. ES BESTEHT EXPLOSIONSGEFAHR WENN DIESE UNSACHGEMÄSS AUSGEWECHSELT WIRD. Die Batterie darf nur durch einen ColorSpan autorisierten Technicker ausgewechselt werden und muss mit dem gleichen oder einem gleichwertigen Typ Batterie ersetzt werden. Bitte entsorgen Sie die Lithium Batterie gemäss Ihren Landes- oder Bundesgesetzen.



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**WARNING** Hot surfaces. Do not touch.

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**WARNUNG** Heiß, nicht berühren.

---



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**WARNING** Moving parts. Keep fingers away from media path.

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**WARNUNG** Bewegliche Teile, Verletzungsgefahr.

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## Unpacking and Assembly



This procedure assumes that the printer is in its final location. See the *Site Preparation Guide* for moving and unpacking hints.

---

**WARNING** The printer is too heavy to be lifted safely by one person. At least three persons are required to lift the printer.

---

**WARNUNG** Der Drucker ist zu schwer für eine Person. Mindestens 3 Personen sind erforderlich um den Drucker anzuheben.

---



**Note** If you will be installing a ColorSpan Print Server, set it up now and power it on. This will allow the server to perform its automatic one-time new system check while you unpack and assemble the printer.

---

### Required Tools

- ◆ Claw hammer to remove the fasteners from the triwall corrugated outer box from the pallet
- ◆ #3 Phillips head screwdriver
- ◆ #2 Phillips head screwdriver
- ◆ Socket wrench with 10 mm socket
- ◆ Bubble level

It is recommended that three persons be available to lift the printer onto the stand and a fourth person to assemble the printer to the stand. The remainder of the installation can be performed by one person.

### Unpacking

1. Examine the shipping packaging for shipping damage.  
The printer is delivered to your site packed in one cardboard box, attached to a wooden pallet. Report any damage or apparent rough handling immediately to the shipper.  
  
For the DisplayMaker 72SR, the input and output tables are shipped in a separate box.
2. Cut and remove the bands that secure the box to the pallet.
3. Remove the nails that attach the box to the pallet.
4. Open the top flaps of the box.

5. Lift the box straight up and off of the pallet.
6. Remove the protective shipping material from around the printer, but **leave the printhead carriage shrink wrapped**.
7. Retain the *Unpacking and Assembly Instructions* (part number 0700024), which is shrink wrapped to the printer.

You can refer to the *Unpacking and Assembly Instructions* (includes a parts list) with this manual during the unpacking and assembly process.

8. Remove all of the parts and boxed kits, except for the printer chassis, from the pallet.
9. Take an inventory of the parts, using the parts list in the *Unpacking and Assembly Instructions*.  
Report any missing or damaged parts to MacDermid ColorSpan.

### Stand Assembly

10. Locate the stand legs and the crossbar.
11. Lock the casters on both stand legs.
12. Using the twelve 10 mm hex-head screws provided, assemble the stand (see Fig. 1-1).

Align the holes on the crossbar with the holes in the stand legs, and attach the screws, but *do not tighten them fully yet*.

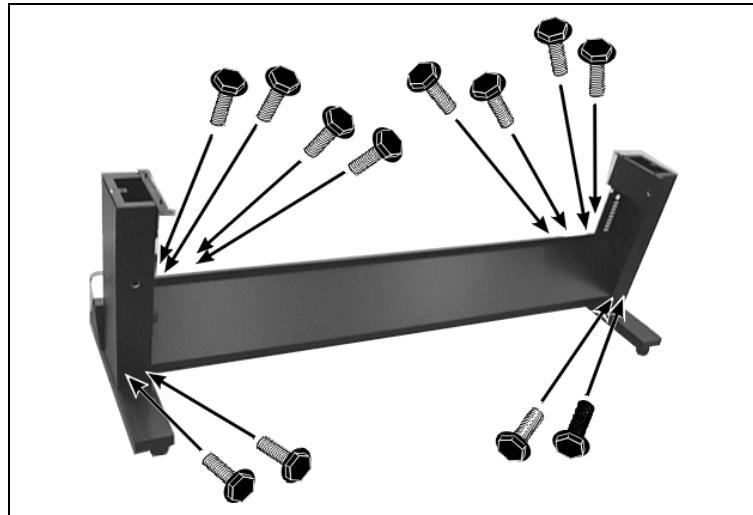


Fig. 1-1. Stand assembly

13. Bias the stand legs outward at the top, then tighten the screws firmly (see Fig. 1-2) but not all the way.

With your foot braced against the outside of the left caster support, gently tug the top of the stand leg toward you, while a second person tightens the screws. Repeat this process with the right stand leg. This step is required to ensure proper clearance for the media spools.

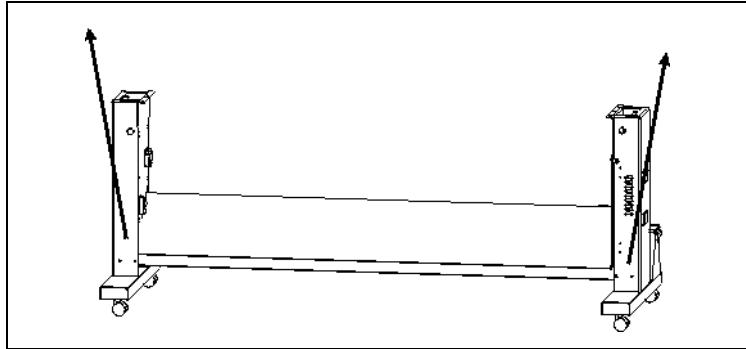


Fig. 1-2. Bias the stand legs outward as shown  
(angle exaggerated for clarity)



**Note**

Leave the threading strings inside the stand legs. You will use them later to pull the ink drain tubes through the legs.

14. If purchased, install the VOC plenum kit.

Refer to the instructions included with the kit.

## Printer Assembly

15. Attach the lift handle to the left end of the printer, using four #2 screws on the back and one screw on the front (see Fig. 1-3).

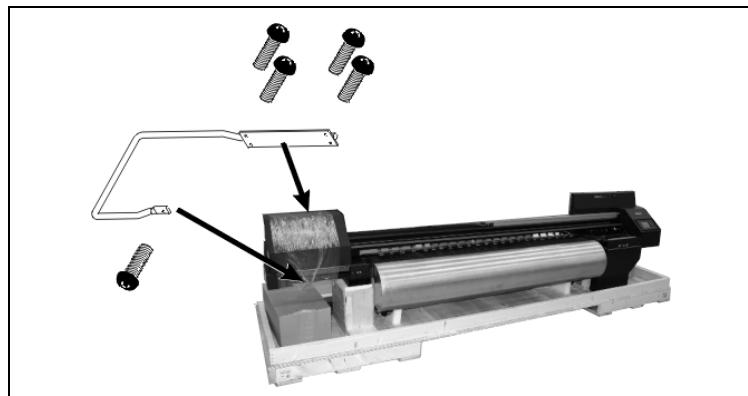


Fig. 1-3. Lift handle

16. Remove and discard the "DO NOT LIFT" label.

17. Detach the printer chassis from the pallet.

The printer chassis is attached with 10 mm hex-head bolts and shock-absorbing washers to two wooden frames on the pallet. Access the screws from the rear of the pallet.

18. Position the stand behind the printer.

19. Lift printer straight up and lower onto the stand legs (see Fig. 1-4).

**Caution**

When assembling the printer onto the stand, be careful to avoid damaging the turnbuckles underneath the postheater by allowing them to strike the stand legs. The turnbuckles are precisely adjusted at the factory, and will clear the stand legs by less than one inch (25 mm) during assembly. Damaging them could result in misalignment of the media path.

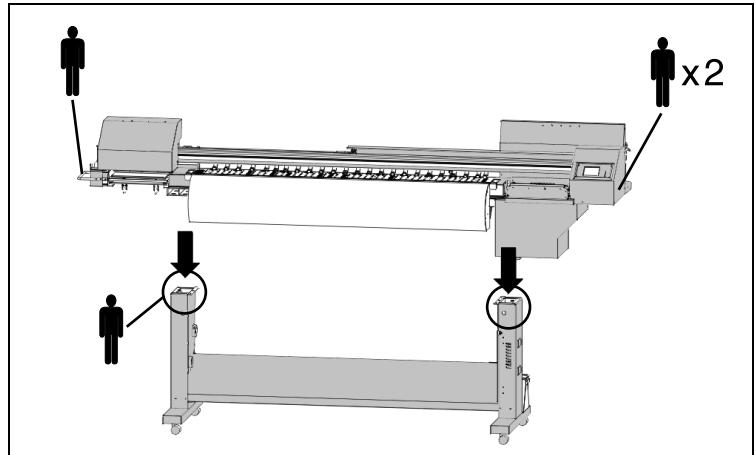


Fig. 1-4. Lowering the printer onto the stand

**WARNING**

The printer is too heavy to be lifted safely by one person. At least three persons are required to lift the printer.

**WARNUNG** Der Drucker ist zu schwer für eine Person. Mindestens 3 Personen sind erforderlich um den Drucker anzuheben.

20. Align the two pins on each stand leg with the holes in printer (see Fig. 1-5).

Have a fourth person perform steps 20 and 21 while three persons hold the printer.

21. Align center hole on each leg (between pins) with center hole in printer (see Fig. 1-5).

To speed this alignment, you can use a screwdriver inserted into the holes in the stand and printer.

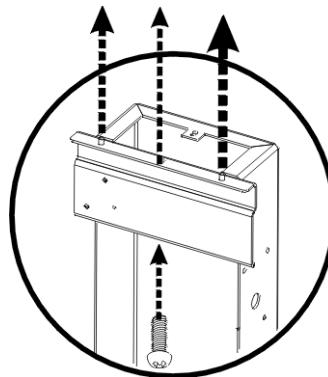


Fig. 1-5. Stand alignment

22. Lower the printer chassis onto the stand.
23. Ensure that the printer lies flat on both of the stand brackets. Realign if necessary.



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**Note** The printer must lie flat on the stand brackets to avoid media feed problems during printer operation.

---

24. Attach the printer to the stand with one silver #3 screw in the center hole on each leg (see Fig. 1-5). **Tighten all stand screws securely.**

The silver screws provide a ground path between the printer engine module and the stand. Use an ohmmeter to verify a ground path between the silver electronics box and the silver locating pin on the supply & takeup assembly, which is visible on the stand leg facing the spools. Resistance should be 5 ohms or less.

If the stand screws are not silver (in other words, “coated”), the wrong screws were installed. Replace the stand screws with the silver screws provided by MacDermid ColorSpan.



---

**Caution**

Failure to assemble the printer to the stand with silver screws could isolate the supply and takeup system from ground, which could result in damage to the printer from electrostatic discharge.

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## Off Head Supply (OHS) Assembly

25. Remove the pump cover (see Fig. 1-6).

This is necessary to access the lower mounting holes for the reservoir wire rack. The pump cover attaches to the printer with two Phillips head screws.

26. Install the reservoir wire rack (see Fig. 1-6).

Insert the top pieces, hooks pointing down, into the mounting holes. Then insert the bottom pieces into the mounting holes.

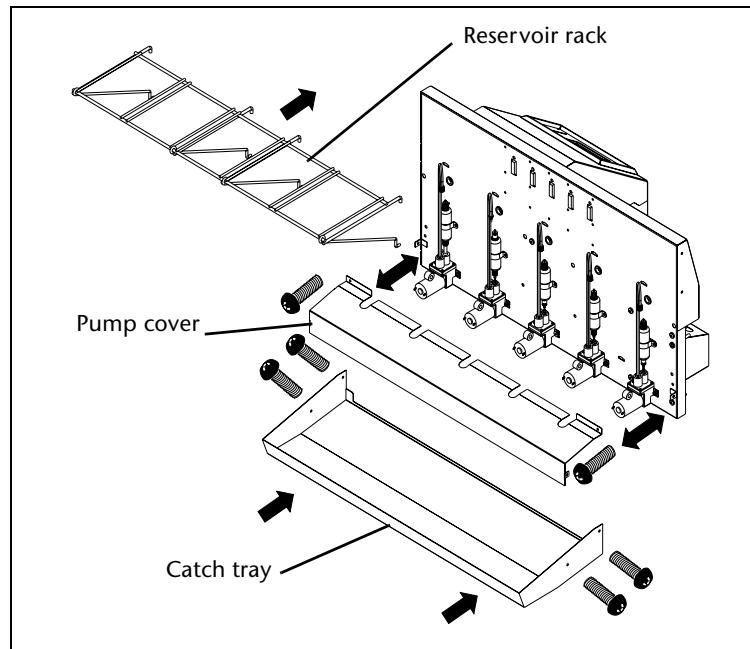


Fig. 1-6. Reservoir wire rack and ink catch tray

27. Reinstall the pump cover (see Fig. 1-6).

28. Attach the ink catch tray to the back of the printer with the four #3 screws (see Fig. 1-6).

29. Install the five reservoirs.

You may want to wear gloves during this procedure to protect your hands from pigment ink stains.

- ◆ Place the reservoir into the wire rack. Match the color or cleaning solvent label on the reservoir with the corresponding label on the printer.
- ◆ Remove the packing material from the ink level floats inside the ink buckets.
- ◆ Unscrew the plastic seal on the hook-shaped tube attached to the filter. Discard, or retain for subsequent use. A small amount of ink may come out of the tube (ink will be present in the tubes from factory testing).
- ◆ Connect the hook-shaped tube to the reservoir's draw tube, by pressing down until it seats with a click, and turning the screw-on connector  $3/4$  to 1 turn. See Fig. 1-7 below for location.

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<b>Note</b>	Do not connect the hook-shaped tube to the air vent. Doing so will result in no ink being drawn from the reservoir.
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- ◆ Connect the float sensor cable from the reservoir to the data port on printer. See Fig. 1-7 below for location.

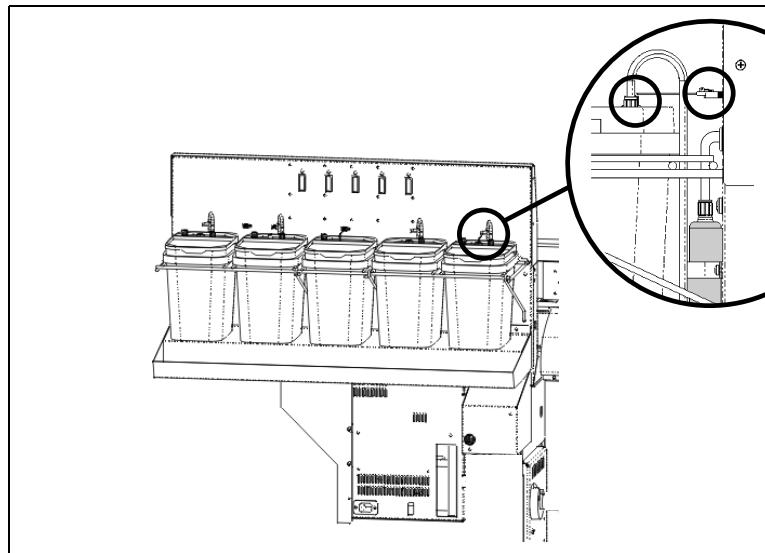


Fig. 1-7. Installing the reservoirs

## Final Assembly

30. Install the vacuum reservoir (see Fig. 1-8).

Ensure that the o-ring is in place inside the reservoir opening, and screw on the reservoir. Hand tighten firmly, but do not overtighten.



Fig. 1-8. Vacuum reservoir

31. Using the threading string attached to the stand leg, pull the drain tube that is connected to the left-side spittoon through the stand leg to the rear of the printer, and connect it to the left-side excess ink reservoir (see Fig. 1-9).



Fig. 1-9. Connecting the drain tube to the reservoir

32. Remove the front cover, and leave it off until the printer is powered up and normal operation is verified.
33. Using the threading string supplied, pull the drain tube that is connected to the right-side spittoon through the stand leg to the rear of the printer, and connect it to the right-side excess ink reservoir (see Fig. 1-10 and Fig. 1-11).



Fig. 1-10. Drain tube routing (with front cover removed)

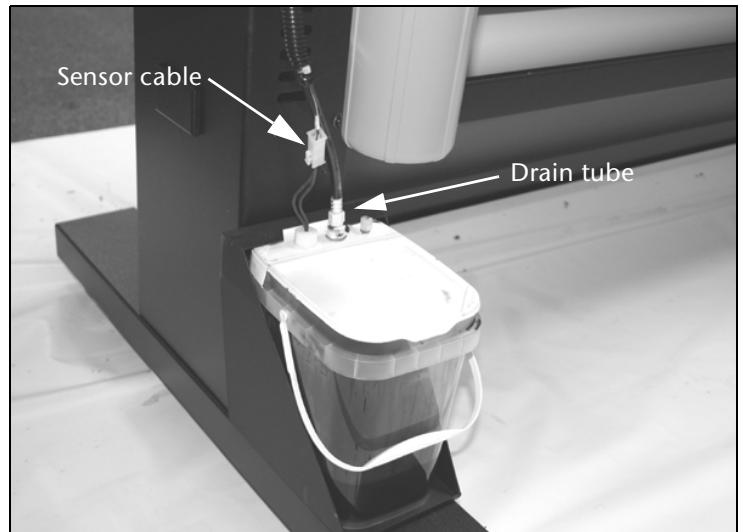


Fig. 1-11. Connect the excess ink sensor cable

**Note**

Ensure that the drain tube is fully attached to the reservoir with a “click.” Partial attachment will not allow ink to drain into the reservoir, which will eventually cause the service station to overflow with excess ink.

34. Connect the cable to the sensor on the excess ink reservoir (see Fig. 1-11).
35. Connect the supply and takeup cable to the port on the side of the electronics box (see Fig. 1-12).

As you look at the front of the printer, the port is located on the left side of the electronics box, near two other cables that are already connected to ports. Connect the cable firmly to the port.

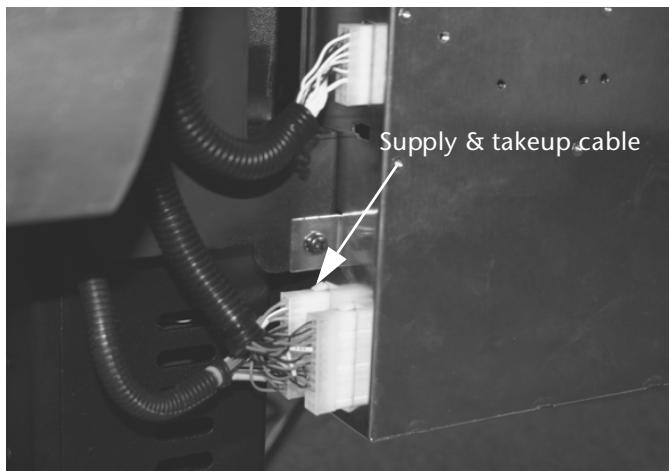


Fig. 1-12. Connecting the supply & takeup cable

36. Remove the two Phillips head screws on the front of the vacuum/pressure system cover, and remove the cover.

37. Connect the power cable to the connector on top of the vacuum/pressure assembly.

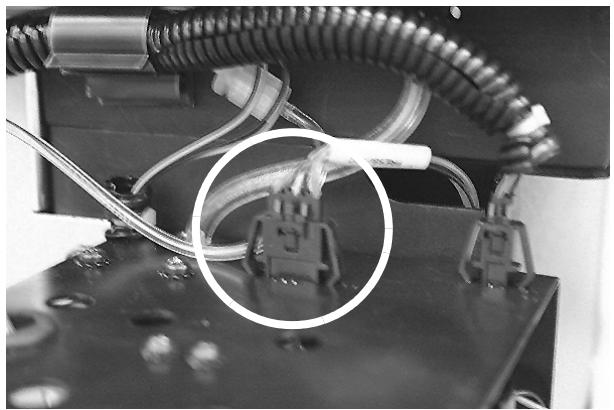


Fig. 1-13. Vacuum/pressure system with cable connection (cover removed)

38. Reinstall the vacuum/pressure system cover.
39. (DisplayMaker 72SR only) Connect the cable from the media-out sensor cable to the cable from the vacuum/pressure system.

Both of these cables are marked with a label that says "MEDIA SNSR."

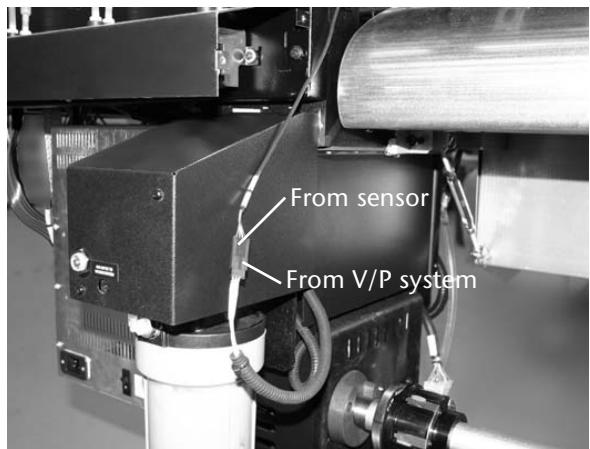


Fig. 1-14. (DisplayMaker 72SR only)  
Connecting the media-out sensor.

40. (Optional) Connect the optional VOC plenum to building ventilation or VOC recovery equipment.

Install and connect the optional VOC plenum to a building exhaust duct or charcoal filter device. Refer to the documentation that accompanies the kit for instructions.

41. Level and stabilize the printer.

Leveling the printer and removing its weight from the stand casters is required to ensure proper media tracking and high-quality prints. Locate the printer on a flat, level floor. Lower all four leveling feet so they contact the floor, then continue lowering them until the printer's weight is off the casters. Next, use a bubble level to ensure that both legs are level front-to-back by adjusting the leveling feet (raise the lower end, and keep the printer's weight off the casters).

42. In the accessory kit, locate the two turnbuckles marked "A" and "B."



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**Caution** **Do not turn the nut on the turnbuckle.** Turning the nut will change the post-heater alignment. If the nut is turned, the post heater will need to be re-aligned to ensure proper media tracking.

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43. From the rear of the printer, install the turnbuckle marked "A" to the location behind the postheater marked "A," using the turnbuckle pins and ring clips.

44. From the rear of the printer, install the turnbuckle marked "B" to the location behind the postheater marked "B," using the turnbuckle pins and ring clips.

45. Check the ground path between the takeup spool and the electronics box.

Set your ohmmeter to check continuity at low voltage (to measure resistance of no more than 3 or 4 ohms). Touch one lead to the takeup spool and the other lead to the steel cover of the electronics box. Manually turn the spool a few rotations to make sure that the spool finger is engaged into the supply & takeup shaft. A resistance reading greater than 2 or 3 ohms could indicate a ground path problem.

46. Check the ground path between the spool and the finger that protrudes from the end of the spool. If this fails, replace the spool.
47. Check the ground path between the electronics box and the supply & takeup assembly.

Touch one lead to the stainless steel pin located between the two Phillips-head screws above the spool collet on the takeup. Place the other lead on the stainless steel cover of the electronics assembly. If this fails, check the grounding between the stand and the printer.

48. (Optional) Assemble and install the input and output tables for rigid cut-sheet media.

If purchased, assemble and install the roller tables as described in the documentation that accompanies them (*DisplayMaker 72SR Table Assembly Instructions*, part number 0706246). The tables are designed to be easily attached to and removed from the printer as needed for cut-sheet or roll fed media.

Once assembled, position the tables as shown in the instructions. Use the supplied shock cords to secure the tables to the printer.

To ensure smooth media advance, level the tables with the platen, using a bubble level. Hold the level on top of and perpendicular to the platen, over each table. Adjust the table's leveling feet until the top of the table is level with the platen.

One of the roller bars on each table is not permanently attached to the table frame. You can reposition this bar as needed to support the far side of any width of media. Simply slide the white plastic clips under the frame support to secure the bar.

## Connecting to Power

See Appendix A, Technical Specifications, or refer to the *Site Preparation Guide*, for detailed power requirements. Consult a qualified electrician if you have any doubt as to how the circuits in your facility can accommodate the printer and print server.



**WARNING** WITH THE POWER SWITCH IN THE OFF POSITION, POWER MAY STILL BE SUPPLIED TO THE PRINTER COMPONENTS. To cut power completely from the printer, you must unplug the power cords from the power outlets.

**WARNUNG** WENN DER NETZSCHALTER IN OFF POSITION STEHT, WIRD DEN KOMPONENTEN TROTZDEM STROM ZUGEFÜHRT. Um den Drucker komplett stromfrei zu machen, müssen Sie den Netzstecker ziehen.

The printer includes an auxiliary 24 volt power jack for the vacuum system. This option enables you to provide temporary power to the vacuum system to prevent ink from flowing from the printheads, in the event of a power failure or if the printer must be powered down for maintenance. The power supply provided in the printer accessory kit includes interchangeable adapter plugs for international use.

To provide battery backup power to the vacuum system, connect the 24 volt power supply from the auxiliary power jack into a UPS (uninterruptable power supply) that you purchase separately. To provide temporary power during maintenance, simply plug the 24 volt power supply directly into a wall outlet (see Appendix A, Technical Specifications, for detailed specifications).

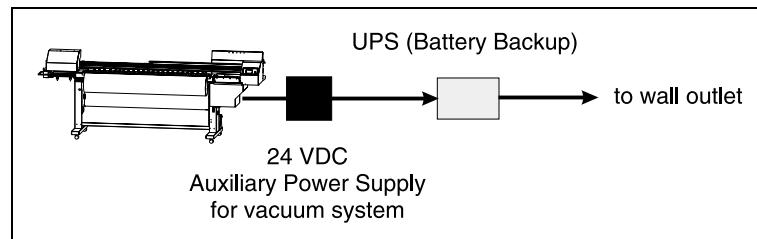


Fig. 1-15. Auxiliary vacuum power

## Connecting to the Print Server

Connect the printer to the print server with the included VideoNet (for ColorSpan print servers) or Ethernet cable (non-ColorSpan RIPS). See Fig. 1-16.

**Note** Do not connect the printer VideoNet cable to your local area network. The VideoNet protocol is not compatible with other network protocols.

Refer to the print server (RIP) documentation for further instructions on connecting the printer to the print server.

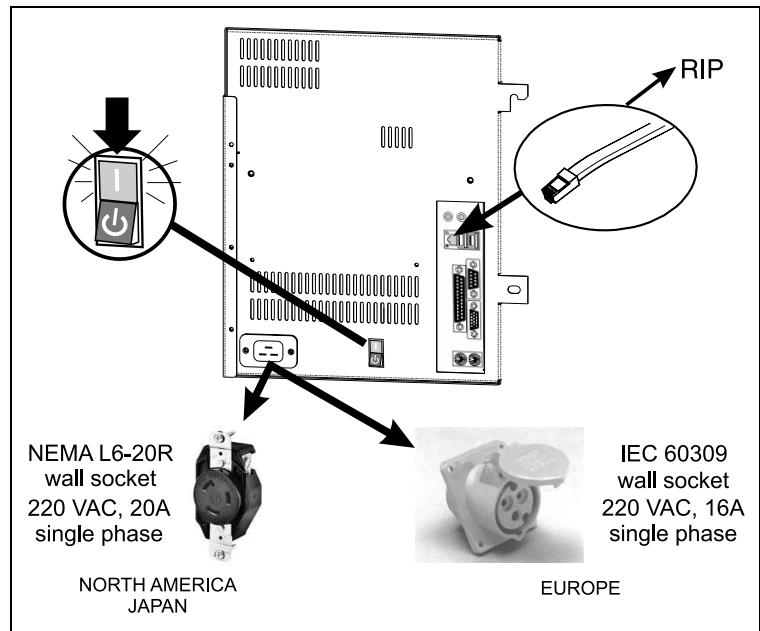


Fig. 1-16. Power and RIP connections

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## First-Time Power-Up and Test Print

### Unpack the Printheads

After the printer is assembled and connected to power, you can power up the printer, load media and ink, and print a test print.

Have a paper towel ready to blot any cleaning fluid that has escaped from the printheads and foam pad during shipping. Most of the fluid should run off the SolaChrome Capping Film into the drip tray.

1. Remove the shipping straps and shrink wrap from around the carriage.
2. Remove the white shipping blocks on the sides of the capping station, and the white shipping pad between the capping station levers as shown in Fig. 1-17.
3. With the printhead carriage over the capping station as shipped, tip the carriage back until it just lifts off the pad below it.



**Caution** Tipping the carriage back too far could damage the encoder, requiring its replacement. Also ensure that the encoder does not disengage from carriage.

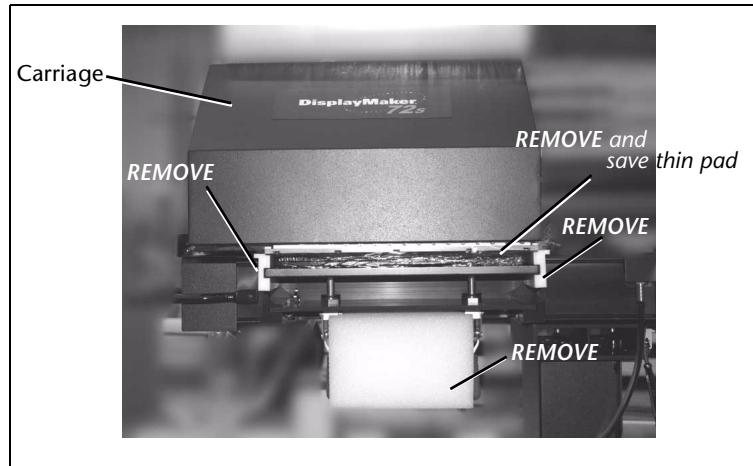


Fig. 1-17. Capping station as shipped

4. Remove the thin black foam pad that is pressed against the printheads, and save it for future use.

When saturated with cleaning fluid, this pad can be used to recover stubbornly clogged jets (see Cleaning Solvent Soak on page 5-9).

5. Remove and discard the Capping Film from the capping station.
6. Leave the capping station, in the lowered position.
7. Slowly lower the carriage back down over the capping station.
8. Move the carriage as needed to locate and remove the white protective strips (for shipping) from the rail.
9. Fill the small squirt bottle (part number 0602448), located in the accessory kit, with SolaChrome HR Cleaning Solvent.

You can use this squirt bottle to moisten a cloth to clean the carriage, platen, and other parts of the printer. Use only a 100% polyester Class 100 cleanroom cloth to clean the printheads.



**Caution** Use of any solvents other than SolaChrome HR Cleaning Solvent could damage the printer and **WILL VOID THE WARRANTY.**

10. At the service station (right end of the printer), squirt a small amount of SolaChrome cleaning solvent into the entire length of the wiper bar to loosen any dried ink and solvent.

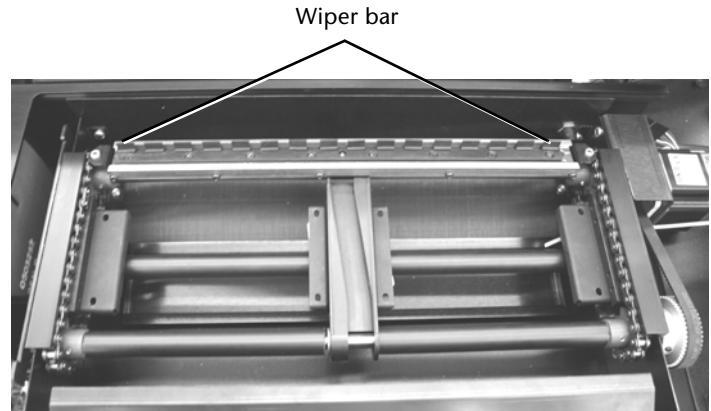


Fig. 1-18. Service station wiper bar

## Power Up the Printer

1. Turn on the power switch to observe the typical power-up sequence.
2. The control panel backlight illuminates. Move the contrast lever (located to the right of the control panel screen) up and down until the control panel graphics and messages are easily visible.
3. The printer runs a series of self-tests, and reports any errors it finds.
4. The printhead carriage moves to the service station.
5. The control panel prompts you to load media.
6. You may load media or skip loading media for now. See “Loading Roll-Fed Media” on page 3-14 for instructions.
7. The control panel displays the status screen.

## Install Ink for the First Time in the Printer

1. Shake each bottle of ink for one minute to redisperse the pigments.

It is not necessary to shake the cleaning solvent.

The green “ready for refill” LEDs should be illuminated, indicating that you may fill the reservoirs.

2. Empty the refill bottles into their corresponding reservoirs, and install the profilers into their corresponding positions in the docking station.

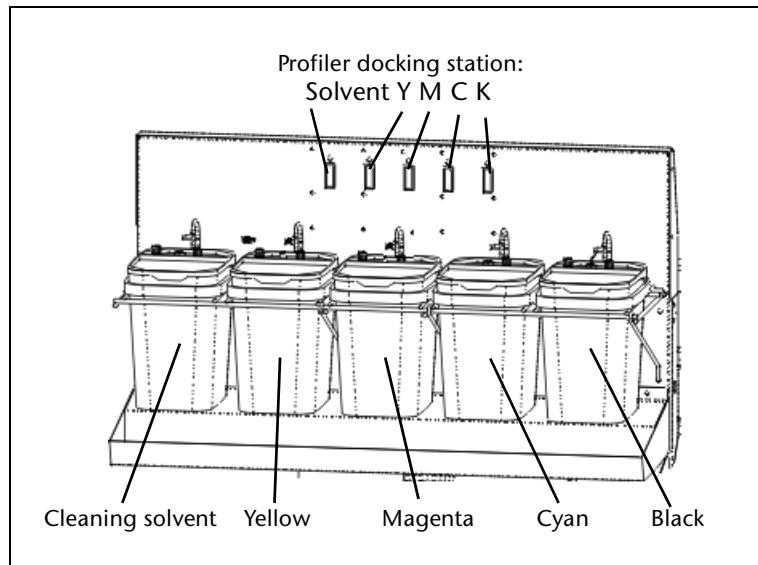


Fig. 1-19. Ink color locations

When you empty a refill bottle into a reservoir, the green LED will blink until you install the corresponding profiler. Then the LED will turn off. Do not refill the inks until the green LED illuminates again.

3. After all four inks and the cleaning solvent reservoirs are full, press the Online/Offline key to display the Front Page screen.
4. From the Front Page screen, press the  (Menu) key to enter the menu system.
5. Press the  key repeatedly to highlight **Maintenance**.
6. Press the  (Menu In) key to display the **Maintenance** menu.
7. Press the  key repeatedly to highlight **Fill Service Station**.
8. Press the  (Menu In) key.

The solvent trough in the service station fills with solvent.
9. From the Maintenance Menu, press the  key repeatedly to highlight **Fill Heads With Ink**.
10. Press the  (Menu In) key.

The printheads are filled with cleaning solvent, emptied, and filled with ink. This process takes approximately 30 minutes and is fully automated. During this process, occasionally check that the ink and cleaning fluid purged from the printheads is draining into the service station's excess ink reservoir. If not, ensure that the drain tube is fully attached to the reservoir (see page 1-18).

## Load Media

To load media in the printer for the first time, see “Loading Roll-Fed Media” on page 3-14 for instructions. The printer ships with a starter roll of media and a cardboard takeup core pre-loaded on the spools.

## Send a Test Print from Server

1. Install and set up the RIP.

Refer to the *Quick Start Guide* for the ColorSpan print server, or the manual that accompanies the third party RIP you will be using.
2. Run the jet health routine to detect, recover, and replace unrecoverable jets.

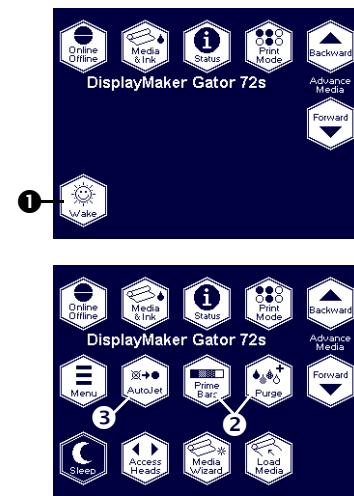
See “Checking Jet Health” on page 3-6 for instructions.
3. Send a test print from the ColorSpan server or RIP to the printer, to verify your installation.

## What's Next?

- ◆ To familiarize yourself with the printer, refer to the remainder of this chapter.
- ◆ For a complete description of using the control panel, see Chapter 2, Using the Control Panel.

# Workflow Overview

## Daily Startup



1. Uncap the printheads (for instructions, see “Uncap the Printheads” on page 3-12).

This procedure includes, while the carriage is still at the caping station, wiping the printheads with SolaChrome HR Cleaning Solvent, using a 100% polyester Class 100 clean-room wipe. **DO NOT USE ISOPROPYL ALCOHOL ON THE PRINTHEADS.**

2. Ensure the functioning or substitution of all inkjets (for instructions, see “Checking Jet Health” on page 3-6):
  - ◆ Print Prime Bars
  - ◆ Run Purge-n-Wipe
  - ◆ Repeat once or twice to recover missing inkjets
3. Map out missing jets (see “AutoJet” on page 4-3 or “Manual Jet Mapping” on page 4-15).

Under normal circumstances, these procedures should adequately prepare the printer to print. For instructions on recovering stubbornly clogged printheads, see “Cleaning Clogged Ink Jets” on page 5-8.

## Printing

When the printer is connected to a ColorMark Pro print server, here is how a typical print job progresses from the client workstation to the printer. If you are using a non-ColorSpan RIP, refer to the documentation that accompanies it for details.

1. The operator sends a file to be printed from a client workstation.
2. The print job is received by the print server.

Once it reaches the print server, the print job may be reprioritized, combined with other jobs, re-routed, or otherwise manipulated. Refer to the print server online help or manual for instructions.

3. The print server RIPs the job.

The raster image processing (RIP) process translates the PostScript language data that comprises the print job into the data required by the printer.

4. The server sends the image to the printer for printing.

Printing can be paused and resumed at the control panel, enabling you to purge the printheads to recover jets or make other adjustments. During the pause, the carriage goes to the service station and idle spits.

## Daily Shutdown

1. Cap the printheads (for instructions, see “Capping the Printheads” on page 3-11).
2. **DO NOT POWER DOWN THE PRINTER.**

If the printheads will be capped longer than overnight, follow the instructions under “Daily Startup” twice a week to prevent excessive ink clogging, then recap the printheads. If this is not possible or impractical, or if the printer must be shipped, see “Extended Power Down and Restart” on page 5-21 for instructions.

For further idle maintenance tips, see “Idle Jet Maintenance” on page 3-3.

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## Parts Overview

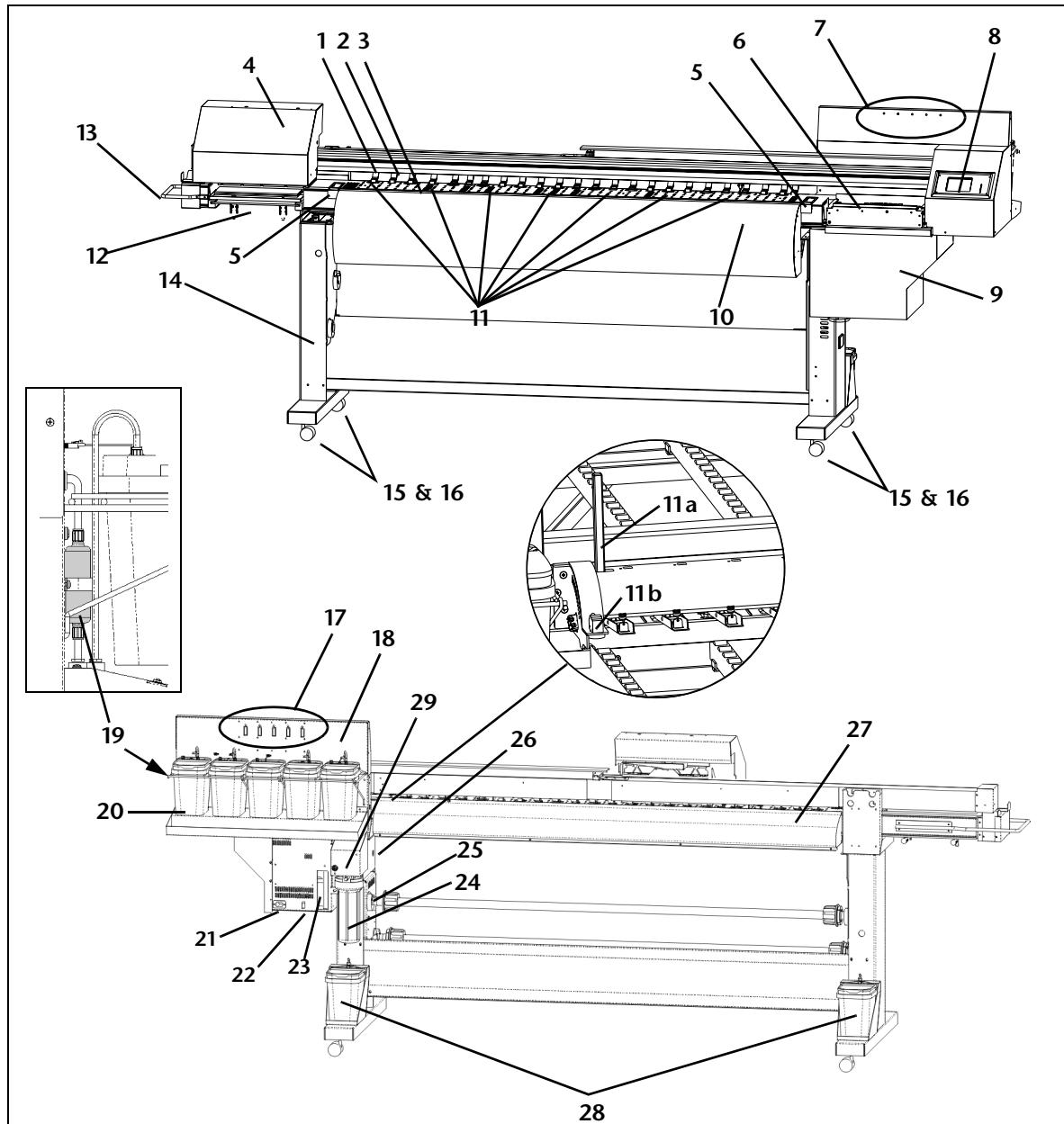


Fig. 1-20. Major parts of the printer

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**Index Description**

1	<b>Encoder strip</b> — allows precise positioning of the print-head carriage across the length of the platen.
2	<b>Main carriage drive belt</b> — moves the carriage across the length of the platen.
	<b>Transport chain (not shown)</b> — supports the ink supply tubes that carry ink from the ink reservoirs to the printheads, power, and electrical signal cables.
3	<b>Platen</b> — supports the media under the printheads during printing, warms the media in the print zone, includes vacuum to hold the media against the platen.
4	<b>Printhead carriage</b> — carries the printheads, digital imaging sensor, and photodiode across the length of the platen.
	<b>Digital image sensor (on carriage, not shown)</b> — detects the location of printed pixels for precise alignment of the printheads, enables the automatic replacement of poorly-printing ink jets with substitute jets.
	<b>Photodiode (on carriage, not shown)</b> — enables the creation of color transforms without an external spectrophotometer (requires print server support), and the linearization of existing transforms.
5	<b>Spittoons</b> — located at both ends of the platen, receives ink "spits" that keep the printheads at their optimal performance.
6	<b>AutoClean™ Service station</b> — catches purged ink from the printheads, wipes the printheads with cleaning solvent. Wipers are automatically cleaned and cleaning solvent applied before wiping. Ink is periodically spit when idle to keep the inkjets working.
7	<b>Ready-for-Refill LEDs</b> — illuminates when there is room for a refill bottle of ink, or when the cleaning solvent reservoir is empty. Blinks when either the ink has been refilled and profiler not replaced, or when the profiler has been replaced but the ink has not been refilled.
8	<b>Control panel</b> — displays messages and allows control of certain printer operations. Includes a contrast adjustment lever and audio feedback.
9	<b>Electronics module</b> — contains the printer's power supply and control electronics.

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**Index Description**

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10 **Postheater** — helps to dry the output prior to the takeup. Incorporates turnbuckles that can be adjusted to straighten the media path.

11 **Pinch rollers (23 places)** — grip the media during loading and printing. If installed, a **pinch roller adjustment lever (11a)** allows you to adjust the force or release the pinch rollers to feed rigid cut-sheet media. A **media out sensor (11b)** detects whether media is loaded.

12 **Capping station** — protects the printheads from drying out while idle (not printing) for extended periods.

13 **Handle** — for pulling the printer on its casters and lifting the end of the printer.

14 **Stand** — supports the printer.

15 **Casters (four places)** — enables easy relocation of the printer, can be locked in place.

16 **Leveling pads (four places)** — allows the printer to be stabilized and leveled for consistent media feeding.

17 **Docking station** — holds the profilers, one for each reservoir, that track ink and cleaning solvent usage, and identify ink characteristics for the RIP.

18 **Off-Head System (OHS)** — reservoirs, electronics, vacuum (to maintain negative head pressure), and pressure (for purging the printheads) that provide ink and cleaning solvent for cleaning the printheads.

19 **Ink filters** — user replaceable, one for each reservoir, filters out impurities from the ink or cleaning solvent prior to being sent to the printheads.

20 **Ink reservoirs** — holds the ink and cleaning solvent supply, 3.5 liter capacity.

21 **Power inlet** — connects the printer to electrical power.

22 **Standby power switch** — places printer in standby mode (to disconnect from power, disconnect power cord).

23 **VideoNet port** — connects printer to print server.

24 **Vacuum/Pressure (VP) assembly** — provides vacuum and pressure to the OHS and printheads.

25 **Media supply and takeup system** — drives and provides tension to the media supply and takeup spools.

26 **Media advance switch** — enables user to advance media forward or backward during loading.

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**Index Description**

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27 **Preheater** — warms the media for optimal printing.

28 **Excess ink containers** — collects ink from the spittoons and service station.

29 **Auxiliary 24 volt power jack to vacuum system** — accepts the supplied 24 volt DC power supply to the vacuum system, which can be connected to a user-supplied UPS for temporary battery backup power in the event of a power failure, or to a wall outlet for temporary power during maintenance that requires the rest of the printer to be powered down. See Appendix A, Technical Specifications, for details.

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## Special Features

The printer has many advanced features to help you produce the best printed output with the least effort.

### Printheads

- ◆ **Micro-Quad™ printheads** — sixteen 600 dpi, 30 picoliter piezoelectric printheads (four per color).
- ◆ **AutoClean™ service station** — a motorized service station that wipes the printheads with cleaning solvent automatically to keep all jets firing properly.
- ◆ **Purge-n-Wipe™** — combines an air pressure purge with a cleaning solvent wipe of the printheads to recover clogged jets.
- ◆ **AutoRecover** — performs a Purge-n-Wipe at the start of a print job (before printing) if a Purge-n-Wipe has not been performed for a specified amount of time.
- ◆ **Automated printhead maintenance** — to keep individual inkjets from drying out, the printer periodically “spits” a small amount of ink and performs a Purge-n-Wipe cycle.
- ◆ **Capping station** — manually-operated capping station prevents drying out of printheads when idle. The printer senses the position of the capping station to prevent carriage movement while capped, or to prevent the carriage from moving to the capping station if it is raised.

### Ink System

- ◆ **Off-Head System (OHS)** — bulk ink and cleaning solvent reservoirs allow refilling without taking the printer offline, even during printing. The printer displays an alert when ink or solvent can be refilled.
- ◆ **Onboard vacuum/pressure (VP) system** — provides vacuum to maintain negative printhead pressure, and air pressure to purge the printheads or ink tubes without removing them from the printer.

**Calibration** The Advanced Automation Eye uses a high-resolution imaging sensor, colorimetric photodiode, and embedded software to align the printheads, detect and replace missing jets, linearize output, and color profile media.

- ◆ **AutoSet™ calibration** — uses a high-resolution digital imaging sensor to automatically align printheads bidirectionally for precise positioning of ink jet pixels, and runs AutoJet.
- ◆ **AutoJet™ calibration** — compensates for lost or misfiring jets by locating them and using substitute jets *without* slowing printing speed.
- ◆ **AutoTune™ scheduling** — runs Purge-n-Wipe and/or AutoJet at user-defined intervals, for highest quality during unattended printing. Optionally, if unsubstituted non-working jets are found, printing stops until the problem is corrected.
- ◆ **Automatic color calibration** — uses an onboard photodiode to linearize output over the entire density range (with print server or RIP support).
- ◆ **Color profiling** — with print server or RIP support, the onboard photodiode can be used to create custom Color-Mark® and ICC color profiles for third-party media.

## Media Handling

- ◆ **Tensioned roll-to-roll media handler** — supply and takeup spools are tensioned to manage vinyl medias on heated surfaces. Tensioning is automatically maintained consistently on the supply and takeup as the roll diameters change during printing. Optionally, the supply or takeup motors can be idled during printing. In roll-fed mode, the supply must be loaded, but the media can optionally be left off the takeup.
- ◆ **Steel media spools** — the takeup supports up to 7.5 inch (190.5 mm) diameter rolls of vinyl media on 3-inch cores. The supply can also accept 2-inch cores with the supplied 2-inch collets.
- ◆ **Rigid cut-sheet option** — if installed, this combination of hardware and software enables printing on rigid cut-sheet media up to 3/16 inch (4.76 mm) thick.
- ◆ **Media width sensing** — automatically detects the width and position of the media loaded, for precise image placement.
- ◆ **AutoEdge** — automatically aids the loading of rigid sheets by detecting right, left and leading edges, and warns the user if the sheet is skewed.

- ◆ **Integrated contact heaters** — preheater and platen heater maintain uniform surface temperature across the printing area to control dot gain on various media. Heated drying surface allows prints to dry before being rolled onto the take-up spool (results may vary based on media and color profile characteristics).

## Performance and Ease-of-Use

- ◆ **Media Wizard** — stores and recalls a set of operating parameters by media type and print mode, for optimal printing performance. Includes a set of predefined settings for standard media; user may add settings for other media.
- ◆ **Speed/quality print modes** — three print modes provided to meet job and business requirements of speed and quality.
- ◆ **Simplified control panel interface** — Front Page screen presents frequently-used functions, with recommended preset configurations. A menu provides access to less-frequently used functions and troubleshooting help.
- ◆ **User assistance** — control panel features online help, interactive procedures, and diagnostics to assist the user “on-the-fly,” reducing training and troubleshooting time.
- ◆ **Integrated Warning/Action system** — the **ATTN (Attention)** key blinks on the control panel when the printer detects an error condition, potential error condition, or when you make a change that suggests recalibration or other action to ensure best print quality. There are two types of ATTN messages:
  - ◆ **Actions** — the printer has detected an error condition that stopped printing or will prevent printing from starting. You must correct the error before the printer will be ready to print. When the printer senses that the error condition has been addressed, the Action will be deleted the next time the ATTN key is pressed.
  - ◆ **Warnings** — the printer has detected a condition that, if left unaddressed, could result in substandard prints or a condition that will require an action before printing can continue. Any action on your part is optional; printing is not interrupted for a Warning message.

## CHAPTER 2

### Using the Control Panel

This chapter describes the functions of the control panel.

- ◆ Overview (page 2-2)
- ◆ Front Page (page 2-4)
- ◆ Navigation Keys (page 2-8)
- ◆ Menu (page 2-9)
- ◆ Menu Tree (page 2-17)

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## Overview

The touch-screen control panel shows you the printer's current status, and enables you to interact with the printer when changing media and ink, respond to an error condition, or configure options. There are three main control panel screens:

- ◆ Ready (Status) Screen
- ◆ Front Page
- ◆ Menu

### Ready Screen

When you press the Online/Offline button from the Front Page screen, the printer goes online and the Ready screen appears. The Ready screen displays the current status of the printer and any currently printing job. It displays when the printer is online (communicating with the print server) and either ready to print or printing.



Fig. 2-1 Ready screen

### Front Page

When you press the Online/Offline button from the Ready Screen, the printer goes offline and the Front Page screen appears. This screen is the top level of the printer's menu system. It provides access to the most frequently-used offline functions. For details, see "Front Page" on page 2-4.

### Menu

When you press the Menu key on the Front Page screen, the Menu appears. The Menu provides access to advanced configuration options. For details, see "Menu" on page 2-9.

## User Assistance

The control panel provides various forms of online user assistance:

The **? button** provides an explanation of the current function, with some guidance for what to do next.

The **ATTN (Attention) key** blinks on the control panel when the printer detects an error condition, potential error condition, or when you make a change that suggests recalibration or other action to ensure best print quality. There are two types of ATTN messages:

- ◆ **Actions** – the printer has detected an error condition that stopped printing or will prevent printing from starting. You must correct the error before the printer will be ready to print. When the printer senses that the error condition has been addressed, the Action will be deleted the next time the ATTN key is pressed.
- ◆ **Warnings** – the printer has detected a condition that, if left unaddressed, could result in substandard prints or a condition that will require an action before printing can continue. Any action on your part is optional, printing is not interrupted for a Warning message.

When the printer issues one of these messages, the ATTN key will blink, and an alert beep will sound (unless disabled, see page 2-14). Press the ATTN key to display a list of message titles, and select a title to display a detailed cause-and-recovery screen.

If you choose to not correct a Warning condition and resume printing, the ATTN key will remain displayed, but will not blink until the printer issues a new Warning or Action message. The messages can be dismissed by correcting the condition, or by pressing the applicable key on the detail screen.



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### Tip

See page 2-13 for instructions for choosing an Expert or Novice mode for displaying these messages (Expert mode routes most messages to the Actions & Warnings menu), and for disabling or enabling the audible alarm. See the table beginning on page B-8 for a list of errors and recovery procedures.

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## Front Page

The Front Page provides access to the most frequently-used printing and maintenance functions. For advanced configuration options, press the Menu key (see “Menu” on page 2-9 for instructions).



Fig. 2-2. Front Page

- ◆ **Printer Name** — displays the name of the printer as defined on the print server.
- ◆ **Online/Offline** — returns the printer to the Ready screen, when it is online and ready to receive print jobs.

- ◆ **Media & Ink** — displays a listing of the media and ink currently installed in the printer. Press the ▼ and ▲ keys to highlight “Media” or one of the inks, then press ► (Proceed) to display information about the selection. From this screen, you can press the ← and → keys to scroll between screens. Press ► (Proceed) to return to the list, then ↵ (Menu Out) to display the Front Page screen.

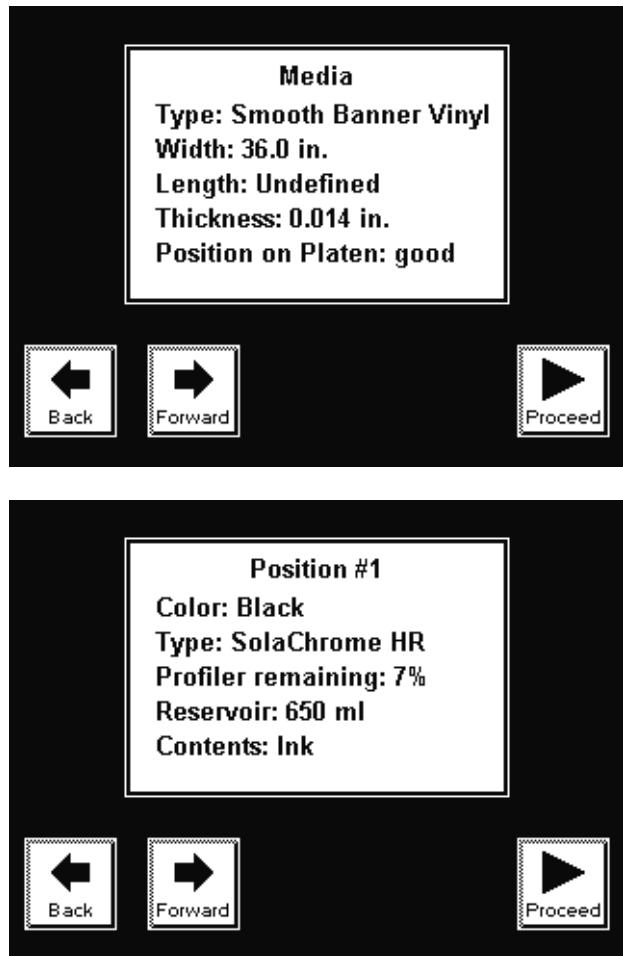


Fig. 2-3. Media Info, Ink Info screens

- ◆ **Status** — displays system parameters and the status of all user-configurable options. Press the **◀** and **▶** keys to scroll between pages. To change an option, go to the Printer Configuration section of the menu.

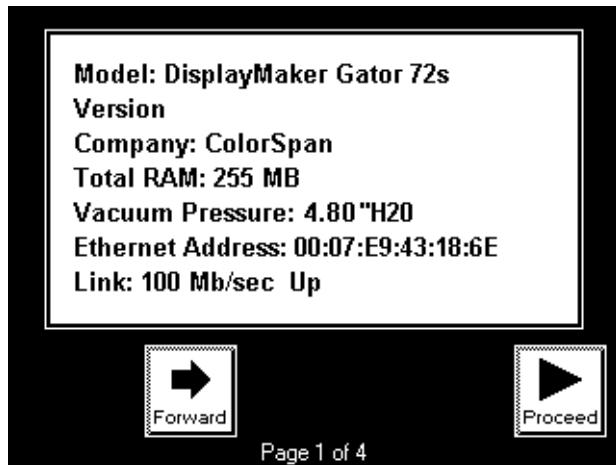


Fig. 2-4. Status page 1

- ◆ **Print Mode** — sets print quality mode. See “Selecting a Print Mode” on page 3-4 for instructions.
- ◆ **Advance Media** — press the **▼** key to advance the media forward. When you press and hold the **▼** key, the media moves faster. Press the **▲** key to reverse the media back onto the supply spool. When you press and hold the **▲** key, the media moves faster. You can also press the Media Advance rocker switch, mounted on the OHS near the postheater, to move the media in either direction.
- ◆ **Menu** — displays the complete printer menu for access to advanced configuration options (see “Menu” on page 2-9 for instructions).
- ◆ **AutoJet** — detects deflected and non-firing jets, and substitutes working jets for them (in Production and Quality modes).
- ◆ **Prime Bars** — fires all jets by drawing a set of lines called prime bars. This is a good way to inspect and prepare the jets for printing after they have been idle (see “Print Prime Bars” on page 3-7). You can also print a similar pattern called Print Jet-Out Lines, which shows which jets have been detected and replaced by AutoJet (see page 2-14 for details).

- ◆ **Purge** — performs a Purge-n-Wipe, which purges the print-heads then wipes them in the service station, to help recover missing jets. Print a prime bars pattern to verify jet recovery. See “Loading Roll-Fed Media” on page 3-14 for instructions.
- ◆ **Sleep** (visible when heads are not capped) — verifies that the capping pad is disengaged (in the lower position), the printer turns off the heaters, detensions the media, and disables the OHS. When you manually engage the capping levers, the capping pad sensor is detected and the control panel disables most functions except for Wake. See “Cap the Printheads” on page 3-11 for instructions.
- ◆ **Wake** (visible when the printheads are capped) — the operator lowers the capping pad, then selects this option to restore the printer from standby mode, enable the OHS, and move the printhead carriage back to the service station (at the far right end of the printer). When the printheads are uncapped, the control panel is fully functional. See “Uncap the Print-heads” on page 3-12 for instructions.
- ◆ **Access Heads** — moves the printhead carriage out from the service station to the capping station. This is the same functionality as the Access Printheads option on the Maintenance menu.
- ◆ **Media Wizard** — provides direct access to the printing parameters stored for the currently loaded media (see “Media Wizard” on page 3-31 for details).
- ◆ **Load** (visible when the supply and takeup are unloaded) — enables you to load media on the supply and/or takeup, and properly tensions the system. See “Loading Roll-Fed Media” on page 3-14 for instructions.
- ◆ **Unload** (visible when the supply and takeup are loaded) — detensions and enables you to unload the supply and takeup system. See “Unloading and Cutting Roll-Fed Media” on page 3-21 for instructions.
- ◆ **Reload** — enables you to load another roll or sheet of the previously printed media with the same settings, without stepping through the media load process.
- ◆ **ATTN** (Attention) — blinks on the control panel when the printer detects an error condition, potential error condition, or when you make a change that requires recalibration or other action to ensure best print quality. See “User Assistance” on page 2-3 for further details.

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## Navigation Keys

The following table shows you how to move through the menu system and perform printer control functions.

Key	Description
	<b>Display Menu</b> — displays the printer menu.
	<b>Menu Up/Down</b> — moves the menu highlight up and down the menu.
	<b>Menu Top/Bottom</b> — moves the menu highlight to the top or bottom for the menu.
	<b>Menu Out</b> — moves to the next higher menu in the hierarchy.
	<b>Menu In</b> — selects the highlighted menu option.
	<b>Back/Forward</b> — moves between pages or screens, or selects between other options.
	<b>Proceed</b> — initiates the selected function.
	<b>Help</b> — displays a summary description of the highlighted menu options.
	<b>Pause/Resume</b> — pauses or resumes printing during a calibration.
	<b>Cancel</b> — cancels the current menu function or choice.
	<b>Yes/No</b> — indicates a Yes or No.
	<b>Continue</b> (error screen) — proceeds to the next step in a troubleshooting dialog.
	<b>Ignore</b> (error screen) — specifies "ignore" in a troubleshooting dialog.
	<b>Retry</b> (error screen) — specifies "retry" in a troubleshooting dialog.
	<b>Reboot Printer</b> (error screen) — specifies "restart printer" in a troubleshooting dialog.
	<b>Information</b> (error screen) — displays further information about the error.

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## Menu

The menu has these main sections:

- ◆ Calibrate Printer (see below)
- ◆ Printer Settings (page 2-10)
- ◆ Maintenance (page 2-14)
- ◆ Service Printer (page 2-16)
- ◆ User Diagnostics (page 2-16)
- ◆ Warnings & Actions (page 2-16), shown in Expert Messages Mode only

This section explains each of the functions on the printer menu. See “Menu Tree” on page 2-17 for a listing of all menu options.

### Calibrate Printer

For details on these options, see Chapter 4, Calibrating the Printer.

- ◆ **Auto Calibrations** — see “Auto Calibrations” on page 4-7 for instructions.
  - ◆ Auto Bidi Calibration — ensures that every working jet fires a pixel at precisely the same location, in both directions of travel
  - ◆ Auto H2H Calibration — aligns the printheads relative to each other
  - ◆ AutoJet Calibration — locates and substitutes missing jets for working jets
  - ◆ Full AutoSet — runs AutoJet and AutoBiDi in sequence

- ◆ **Manual Calibrations** — allows you to calibrate the printer visually, without the printer's digital imaging sensor. Inaccurate judgments by the operator during these tests could result in substandard output. See "Manual Calibrations" on page 4-8 for instructions.
  - ◆ Media Feed
  - ◆ Manual Bidi Registration
  - ◆ Manual X Head Registration
  - ◆ Manual Jet Mapping — the manual version of AutoJet
  - ◆ Jet Status Lines — prints the Manual Jet Mapping pattern without running the calibration
  - ◆ Default Registration Data
- ◆ **AutoTune** — schedules jet maintenance to run automatically after a certain number of prints have printed. See "AutoTune" on page 4-4 for instructions.
- ◆ **AutoRecover** — performs a Purge-n-Wipe at the start of a print job (before printing) if a Purge-n-Wipe has not been performed for a specified amount of time. See "AutoRecover" on page 4-6 for instructions.
- ◆ **Calibration Summary** — prints summary information with the AutoSet calibration test patterns, or transmits registration or jet data to a log file on the print server. "Calibration Summary" on page 4-22 for details.
- ◆ **Configure for Profile Creation** (cut sheet printing only) — causes all calibration prints to print on the same cut sheet, rather than ejecting the sheet after each calibration print. Automatically disabled after all calibration prints are finished, when a print job is received from the RIP, or when roll-fed media is loaded. Also allows you to configure a dry time before calibration readings are taken.

## Printer Settings

Printer Settings enables you to set many options that control how the printer operates. Settings saved by the Media Wizard are indicated by **MEDIA WIZARD** in the margin.

### **MEDIA WIZARD**

- ◆ **Takeup Tension** — adjusts the media takeup tension, which is required for proper media feeding. Insufficient takeup tension could result in inaccurate media feed and media buckling.

### **MEDIA WIZARD**

- ◆ **Supply Tension** — adjusts the media supply tension, which is required for proper media feeding. The lowest ("idle") tension is best for most media.

- ◆ **Supply Out Detection** — for roll-fed media, the printer usually monitors the supply spool to detect when it runs out of media. You can use this menu option to disable media out detection when you keep the takeup spool pin release tool (part number 0504334, see “Takeup Spool Pin Release” on page 3-22 for instructions) installed for printing rather than to freely pull a small amount of media from the supply.
- MEDIA WIZARD**
- ◆ **Heater Temp Settings** — selects one of several pre-defined temperatures, plus one custom, user-defined setting. Excessively high heat could cause the media to deform or stick to the platen, while not enough heat could result in partially dried prints. For instructions, see “Setting Heater Temperatures” on page 3-34.
- MEDIA WIZARD**
- ◆ **Platen Vacuum Control** — turns on the vacuum fans, then allows you to raise or lower the fan speed. Raise the speed if the media is rising off the platen, lower the speed if the media is buckling or wrinkling. Turn off the vacuum for lightweight media such as paper or fabrics.
- MEDIA WIZARD**
- ◆ **Drying Delay** — a drying delay slows throughput (media advance speed) to allow prints to dry more thoroughly. Select the shortest delay that permits complete drying.
- ◆ **Excess Ink Sensor** — enables you to disable the excess ink sensor if it is malfunctioning, or enable it after it has been replaced. When the sensor in the excess ink reservoir under the supply reservoirs indicates that the reservoir is full, it generates an Action message on the control panel, and printing cannot proceed. Do not disable the sensor unless a malfunction erroneously prevents printing.
- ◆ **Capping Station Sensor** — allows you to disable the capping station sensor if it is malfunctioning, or enable it after it has been replaced.
- ◆ **Media Out Sensor (72SR)** — allows you to disable the input table’s media out sensor if it is malfunctioning, or enable it after it has been replaced. Use care when printing with this sensor disabled, to avoid printing on the platen or striking the carriage against the media.
- ◆ **Gutter Settings** — determines the appearance of the top and side gutters:
  - ◆ **Top Gutters** — allows you to turn **On** or **Off** the gutter pattern at the top edge of the print, which shows data

about the print such as date and time printed and print mode, plus write-in blanks for other data.

```
Job: Test Job  Ink: SolaChrome HR  Media: UltraSmooth
Date/Time: 2003-11-19 10:52:11
Printmode: Production Quality
Printer: DisplayMaker Gator 72s  Version :
Transform: () ----- Calibrated: Y  N
Printed By: -----
```

Fig. 2-5. Top gutter data

- ◆ Side Gutters — sets the side gutter pattern to **Narrow**, **Medium**, or **Wide** sizes, or turns them **Off**. Side gutter patterns help keep the ink jets open by firing ink through them in a pattern outside the printed image area. You can print gutters on the left side only of the media (closest to the capping station), or both sides. Printing on the left side only reduces ink usage, while printing on both sides can keep the inkjets clearer. Using this feature decreases the width available for printing the job.
- ◆ Left Platen Gutter — determines when the jets will fire in the left spittoon to keep all jets firing correctly. Turning off this function may speed throughput with narrower media, since it allows the carriage to turn around before reaching the end of the platen, but it may also necessitate more frequent Purge-n-Wipe operations to clear clogged jets. **Always On** fires the jets in the spittoon with all media widths. **For Narrow Media Only** fires the jets in the spittoon only if the media is less than 40 inches wide. **For Wide Media Only** fires the jets only if the media is less than 72 inches wide. **Off for All Media** disables spittoon firing for all media widths.
- ◆ Platen Gutter Spits — sets the amount of ink used by the maintenance spits to High, Medium, and Low. To conserve ink, use the lowest setting that keeps the jets open. The default High.
- ◆ Margin Settings
  - ◆ Space Between Prints (roll-fed) — sets the blank space between print jobs, between 0 and 10 inches (25 cm).
  - ◆ Right and Left Margin — sets the amount of blank space for the right and left margins, between 0 and 5 inches (13 cm).
  - ◆ Leading Margin (cut-sheet) — sets the amount of blank space at the leading edge of cut-sheet media.

- ◆ Trailing Margin (cut-sheet) — sets the amount of blank space at the trailing edge of cut-sheet media.
- ◆ **Media Measure Type** — for cut-sheet media, you can choose one of three levels of precision for finding the left, right, and front edges of the media.
  - ◆ Minimal — measures the width of the media once, and finds the front right edge
  - ◆ Standard — measures the width of the media once, and finds the right and left front edges to estimate skew
  - ◆ Maximal — measures the width of the media in two places, and finds the right and left front edges to estimate skew and detect non-rectangular sheets

Choose Minimal for fastest throughput with media in perfect condition, Maximal for greatest precision and skew detection when printing edge-to-edge.

- ◆ **Quality Check** — determines how AutoTune errors are handled (see “AutoTune” on page 4-4 for information about AutoTune).
- ◆ **Print Position** — when the printed image does not span the entire width of the media, positions the printed image flush right (nearest the control panel), flush left (nearest the capping station), or centered on the media.
- ◆ **Stiff Roll-Fed Media Handling** — when enabled, detensions then retensions the takeup system before every print job, for more accurate feeding of adhesive-backed and other stiffer roll-fed media types.
- ◆ **Standby Wait** — sets the period of time to wait for a print job before going into standby mode, which turns off the heaters and detensions the supply and takeup system.
- ◆ **Expert/Novice Messages** — **Novice** mode presents Warnings (alerts that do not prohibit printing) and Actions (conditions that require user intervention before printing can proceed). **Expert** mode presents Actions only, presents fewer “press Proceed” prompts after an Action has been addressed. The default is Novice mode.

When in Expert mode, active Warnings and Actions can be displayed by selecting **Warnings & Actions** from the menu, since Warnings will not cause the ATTN icon will appear in Expert mode. See “User Assistance” on page 2-3 for further information about Actions and Warnings. See “Warnings & Actions” on page 2-16 for further information about this menu option.

- ◆ **Audible Alarm** — enables and disables the audible alarm beep that sounds with Warning and Action messages.
- ◆ **Units** — sets **English** or **Metric** units of measure for data displayed by the control panel.
- ◆ **Head Height** — moves the printhead carriage over the platen so you can adjust the head height. See “Set the Printhead and Camera Height” on page 5-11 for instructions.
- ◆ **Service Station** — allows you to set the alignment and height of the service station wipers. For instructions, see “Calibrate the Service Station” on page 5-16.
- ◆ **Air Purge Type** — you can perform a 4-color purge and the AutoTune purge with all four colors at once (“Standard Purge”) or one color at a time (“Performance Purge”). The Performance Purge occurs at a higher pressure than the Standard Purge.
- ◆ **Automatic Eject** (cut sheet printing only) — when enabled, the sheet is automatically ejected at the end of the print job. When disabled, the next job(s) will print on the same sheet until there is no more room to print.
- ◆ **Printer Name** — displays a keypad to change the printer name displayed on the control panel and RIP or ColorSpan Print Server.
- ◆ **Idle Spits** — when the printer is idle, it automatically spits a small amount of ink into the service station to keep the ink-jets open and working. To reduce the amount of ink consumed during idle spitting, you can set the operation to Medium or Low. To ensure that the printheads are always at maximum readiness, use the High setting.
- ◆ **Restore All Defaults** — restores all Printer Configuration settings to their factory default values, and zeroes all registration data. After running this option, all calibration values must be reestablished by running AutoSet or manual calibrations.

## Maintenance

- ◆ **Access Printheads** — moves the printhead carriage out from the service station to the capping station. This is the same functionality as the Access Heads button on the Front Page.
- ◆ **Purge A Color** — purges the four printheads of a single color, rather than all sixteen printheads. This is helpful when recovering stubborn jet-outs.
- ◆ **Print Jet-Out Lines** — prints a version of the prime bars (see page 2-6), in which missing jets that are replaced are marked with a black square.

- ◆ **Print Media Skew Lines** — prints a swath of parallel lines across the width of the media, in alternating directions, continuously until you stop the print. If the swaths are not parallel to each other, the media is skewed (not feeding straight). If there is a noticeable space between swaths, or if they overlap, the media advance should be calibrated (see “Media Feed” on page 4-9 for instructions).
- ◆ **Fill Service Station** — fills the service station reservoir with cleaning solvent.
- ◆ **Reset Reservoir Filters** — after you replace the reservoir filters, select this option to reset the ink counts to zero. See “Replace Ink Filters” on page 5-18 for instructions.
- ◆ **Respool Media** — this option enables you to respool media from the supply directly to the takeup (in either direction) without passing over the heaters or platen.
- ◆ **Clean Grit Rollers** — advances the grit rollers continuously so they can be cleaned (with no media loaded).
- ◆ **Capping Purge** — enables you to disable or enable the purge that is automatically performed prior to capping.
- ◆ **Printheads Procedures** — see “Printhead Maintenance” on page 5-7, for instructions on using the following options:
  - ◆ Cleaning Solvent Soak
  - ◆ Prep for Storage/Shipping
  - ◆ Load Ink in All Heads — when installing ink for the first time, or when restarting the printer after an extended power down period, this function fills the empty printheads with cleaning solvent, empties the printheads, and fills the heads with ink.
  - ◆ Fill Heads with Solvent — fills the printheads with cleaning solvent.
  - ◆ Fill Heads with Ink — fills the printheads with ink.
  - ◆ Empty Heads (Fill With Air) — fills the printheads with air.
  - ◆ Cyan Heads Maintenance — performs two purges, then fills the heads with cleaning solvent four times, then empties the heads, and then fills them with ink again. Perform every time the printer is idle for 24 hours, to keep the cyan printheads working. Follow up with the procedure “Checking Jet Health” on page 3-6 to keep all jets working.

**Service Printer** These tests are for factory, service, and technical support use.

**User Diagnostics** User Diagnostics presents an interactive troubleshooting program to diagnose problems before calling MacDermid ColorSpan Technical Services. It walks you through a series of tests and checks for certain printer functions. The printer asks you to make observations or run simple tests to help it diagnose problems and suggest corrective actions. It has the following sections:

- ◆ **Printhead Jet Statistics**
- ◆ **VideoNet Status**
- ◆ **VideoNet Connection**
- ◆ **Carriage Motion**
- ◆ **Calibration**
- ◆ **Vacuum Pressure**
- ◆ **Warnings and Actions List** — table of all actions and warnings with cause and recovery. This is an abbreviated version of the table “Actions and Warnings” on page B-8.
- ◆ **Error History**
- ◆ **Log Error History**

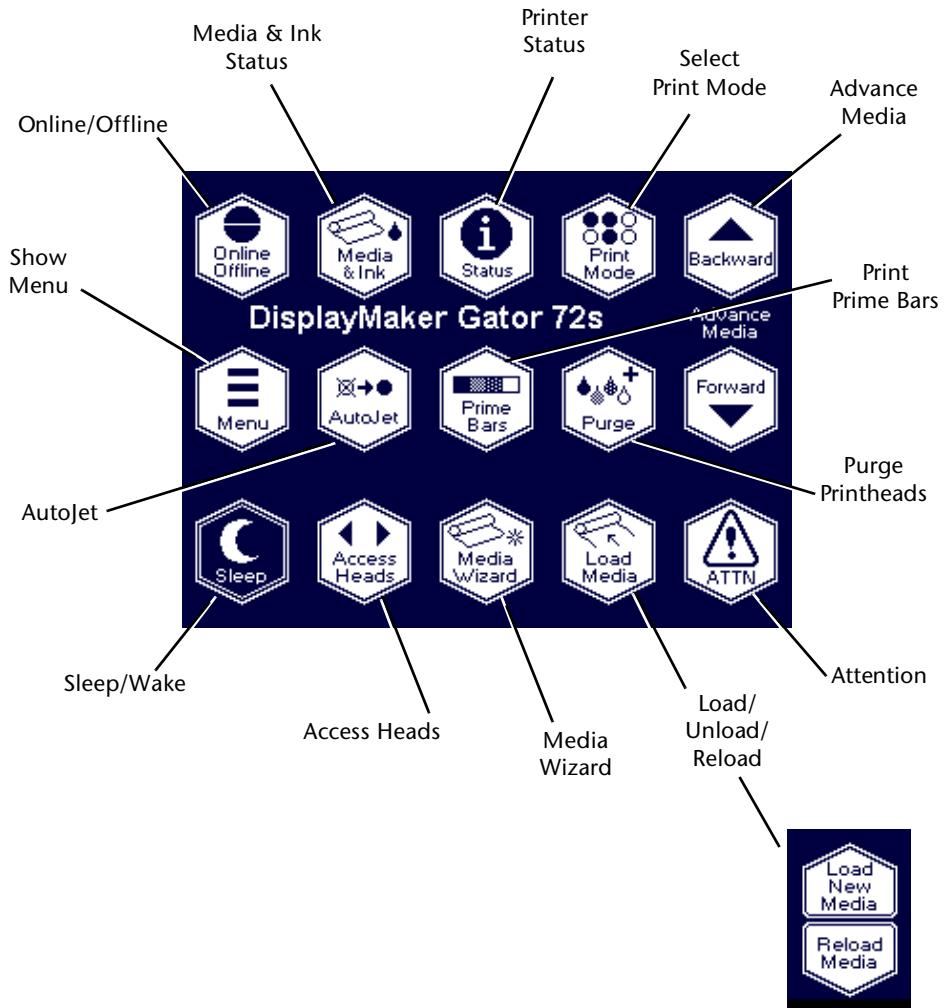
## **Warnings & Actions**

When in Expert mode, active Warnings, Changes, and Actions can be displayed by selecting Warnings & Actions from the menu, since Warnings will not cause the ATTN icon will appear in Expert mode. This option does not appear in Novice mode.

See “User Assistance” on page 2-3 for further information about Actions and Warnings, and the table beginning on page B-8 for a list of recovery procedures. See page 2-13 for a description of the Expert/Novice Messages mode.

## Menu Tree

### Front Page



**Menu** This menu tree reflects version 2.32 of the embedded printer software.  
Refer to the *Release Notes* for more recent versions.

(72S)=option visible only on DisplayMaker 72S.  
(72SR)=option visible only on DisplayMaker 72SR.  
\* = option visible only in rigid sheet-fed mode.

<b>Calibrate Printer</b>	Localization (was "Units")
<b>Auto Calibrations</b>	Units of Measure
Auto Bidi Calibration	Time Format
Auto H2H Calibration	Date Format
AutoJet Calibration	Head Height
Full AutoSet	Service Station
<b>Manual Calibrations</b>	Air Purge Type
Media Feed	Automatic Eject (72SR/SRU/98SX)
Manual Bidi Registration	Idle Spits
Manual X Head Registration	Printer Name
Manual Jet Mapping	Restore All Defaults
Jet Status Lines	
Default Registration Data	<b>Maintenance</b>
<b>AutoTune</b>	Access Printheads
<b>AutoRecover</b>	Purge A Color
<b>Calibration Summary</b>	Print Jet-Out Lines
AutoSet Summary	Print Media Skew Lines
Log Head Registration Data	Fill Service Station
Log Jet Data	Reset Reservoir Filters
<b>Configure for Profile Creation (72SR/98SX)</b>	Respool Media
<b>Printer Settings</b>	Clean Grit Rollers
Takeup Tension	Capping Purge
<b>Supply Tension (72S/SR)</b>	Printheads Procedures
<b>Supply Out Detection (72SRU/98SX)</b>	Cleaning Solvent Soak
Heater Temp Settings	Prep for Storage/Shipping
Platen Vacuum Control	Load Ink In All Heads
Drying Delay	Fill Heads with Solvent
Excess Ink Sensor	Fill Heads with Ink
Capping Station Sensor	Empty Heads (Fill With Air)
<b>Media Out Sensor (72SR/SRU/98SX)</b>	Cyan Heads Maintenance
Gutter Settings	
Top Gutters	<b>Service Printer</b>
Side Gutters	
Left Platen Gutter	<b>User Diagnostics</b>
Platen Gutter Spits	Printhead Jet Statistics
Margin Settings	VideoNet Status
Space Between Prints (roll-fed media)	VideoNet Connection
Right and Left Margin	Carriage Motion
<b>Leading Margin (72SR/SRU/98SX)</b>	Calibration
<b>Trailing Margin (72SR/SRU/98SX)</b>	Vacuum Pressure
Measure Media Type	Warnings and Actions List
Quality Check	Error History
Print Position	Log Error History
Stiff Roll-Fed Media Handling	
Standby Wait	<b>Enable On-Head System</b>
Expert/Novice Messages	
Audible Alarm	<b>Warnings &amp; Actions</b> (Expert mode only)

# CHAPTER 3

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## Ink and Media

This chapter describes:

- ◆ Ink System Overview (page 3-2)
- ◆ Selecting a Print Mode (page 3-4)
- ◆ Checking Jet Health (page 3-6)
- ◆ Refilling Ink (page 3-9)
- ◆ Capping the Printheads (page 3-11)
- ◆ Loading Roll-Fed Media (page 3-14)
- ◆ Unloading and Cutting Roll-Fed Media (page 3-21)
- ◆ Loading Rigid Media (page 3-25)
- ◆ Unloading and Reloading Rigid Media (page 3-31)
- ◆ Media Wizard (page 3-32)
- ◆ Setting Heater Temperatures (page 3-35)

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## Ink System Overview

The printer's ink system consists of the following components:

- ◆ **OffHead System (OHS) reservoirs** — four solvent-based ink reservoirs (CMYK) and one cleaning solvent reservoir.
- ◆ **Ink tubes** — carry ink and cleaning solvent to the print-heads, and cleaning solvent to the service station.
- ◆ **Printheads** — permanent piezo-based printheads.
- ◆ **Vacuum/Pressure (VP) System** — provides vacuum to maintain negative pressure at the printheads, and pressure to purge the ink tubes and printheads.
- ◆ **Profilers** — provided with each bottle of ink and cleaning solvent, they contain information about the ink and must be installed together with their corresponding bottle of ink or cleaning solvent. Profiler data are used to track ink and cleaning solvent levels, and to help ensure optimal output quality and compatibility with printer components.
- ◆ **LEDs** — LEDs over each reservoir illuminate to indicate the status of the OHS:

Condition	Meaning
Off	Less than 2 liters of ink have been used since the reservoir was refilled.
On	Over 2 liters of ink have been used since the reservoir was filled. Refill the ink (see "Checking Jet Health" on page 3-6).
Blinking (fast)	Ink has been refilled, but the new profiler has not yet been installed, or a new profiler has been installed, but the ink has not yet been refilled.
Blinking (slow)	Ink refilled and profiler installed, printer is reading the profiler.

- ◆ **Refill bottles** — refill bottles of ColorSpan SolaChrome-HR ink and cleaning solvent are designed to be emptied into the reservoir an entire bottle at a time. This helps reduce the effects of pigment settling in the bottle, and keeps the ink level calculations accurate.



**Caution** Use only genuine ColorSpan inks and cleaning solvent in the printer. Use of any other inks or cleaning fluids **COULD DAMAGE THE PRINTER AND WILL VOID THE WARRANTY.**

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## Idle Jet Maintenance

Due to the evaporation of the solvents in solvent-based inks, the ink jets in solvent printers are susceptible to clogging. To minimize jet-outs, keep the printer printing and clean, and use the printer's jet maintenance features.

The following table shows the recommended maintenance schedule while the printer is idle. See Chapter 5, Maintaining the Printer, for a complete listing of recommended maintenance to keep the printer operating well and covered by the manufacturer's warranty.

Time Period	Recommended Maintenance
<b>1 hour</b>	When not printing while the printheads are uncapped, a small amount of ink is expelled (spit) periodically into the spittoons, which drain into the excess ink containers.  See "Checking Jet Health" on page 3-6 for instructions on using Purge-n-Wipe and AutoJet. See "AutoTune" on page 4-4 for instructions on scheduling Purge-n-Wipe and AutoJet to run automatically.
<i>Momentary Power Down</i>	If the power must be removed for a brief period of time, leave the carriage over the service station ( <i>not</i> the capping station) to allow the ink, which will no longer be held inside the printheads by the vacuum/pressure system, to drain into the excess ink reservoir. Power up the printer as soon as possible and cap the printheads if the printer will be idle for 4 hours or more.
<b>2 hours to 4 days</b>	Cap the printheads to prevent drying and conserve ink (idle spit is suspended during capping). See "Capping the Printheads" on page 3-11 for instructions.  This capping period can successfully be extended if every four days the printheads are uncapped, purged to recover missing jets, prime bars or other print is made, and recapped.
	For best results, do not allow the printer to remain capped for more than 4 days; otherwise, extensive cleaning of the printheads may be required. If the printer must remain capped longer than four days (such as during a long holiday weekend, for shipping, or storage), follow the applicable procedure below:
<b>4 - 14 days</b>	Cap the printheads as described in "Capping the Printheads" on page 3-11.
<b>14 - 30 days</b>	Fill the printheads with cleaning solvent and cap the printheads. See Cleaning Solvent Soak on page 5-7 for instructions.
<b>30 days or more</b>	Flush the printheads with cleaning solvent, empty the printheads, and cap. See "Extended Power Down and Restart" on page 5-21 for instructions.

## Selecting a Print Mode

The bidirectional print modes (printing occurs in both directions) enable you to select the combination of print speed and quality required. Speed or throughput depends on the mode selected, and by other factors such as the width of the image.

The unidirectional (left-only) modes are available for rigid cut-sheet printing only. Unidirectional printing eliminates the bidirectional misalignment that occurs when printing on media that is not perfectly flat.

1. On the Front Page screen of the control panel, press the **Print Mode** key.

The print mode menu appears, with three options:



Mode	Jet Replacement	Maximum Speed
Billboard Quality	None	400 ft <sup>2</sup> /hour
Production Quality	Standard	200 ft <sup>2</sup> /hour
High Quality	Maximum	100 ft <sup>2</sup> /hour
Billboard Quality		
Unidirectional	None	Approx. 200 ft <sup>2</sup> /hr
Production Quality		
Unidirectional	Standard	Approx. 100 ft <sup>2</sup> /hr
High Quality		
Unidirectional (requires 245 MB of printer memory)	Maximum	Approx. 50 ft <sup>2</sup> /hr

Jet replacement refers to the printer's ability to locate and replace ink jets that are clogged or misfiring. High Quality mode has the best jet replacement, Billboard Quality mode has the highest speed.

2. Press the **▲** and **▼** and keys to highlight a print mode.
3. Press the **✓ (Set)** key to select the print mode.

---

## General Printing Tips

- ◆ See “Important Operating Notes” on page 1-3 for important information on operating the printer.
- ◆ Before printing on vinyl media that has been loaded on an idle printer overnight or longer, advance the portion of the media that has been resting on the preheater (prior to the platen) past the print zone. In this situation, the vinyl tends to retain the shape of the preheater, making it more likely that the printheads or carriage will strike the media.

## Checking Jet Health

The printer's automatic jet maintenance features (gutter printing, spits, service station wipes) are designed to keep the inkjets from clogging. In addition, when AutoJet detects a missing jet, it attempts to replace it with a working jet on the same or another printhead (in Production and High Quality modes). In this way, printing occurs with all jets for maximum quality.

When you notice a decrease in print quality, one or more inkjets may be clogged. To recover clogged jets:

1. Print a **Prime Bars** pattern to determine whether there are any missing jets (see page 3-7).
2. If there are any missing jets, **Purge-n-Wipe** the printheads (see page 3-7) or **Print Jet-Out Lines** (page 3-7).
3. Run **AutoJet** (page 4-3) or **Manual Jet Mapping** (page 4-15).
4. Repeat this process until all jets are working or substituted for another jet. This process is summarized in Fig. 3-1, below.

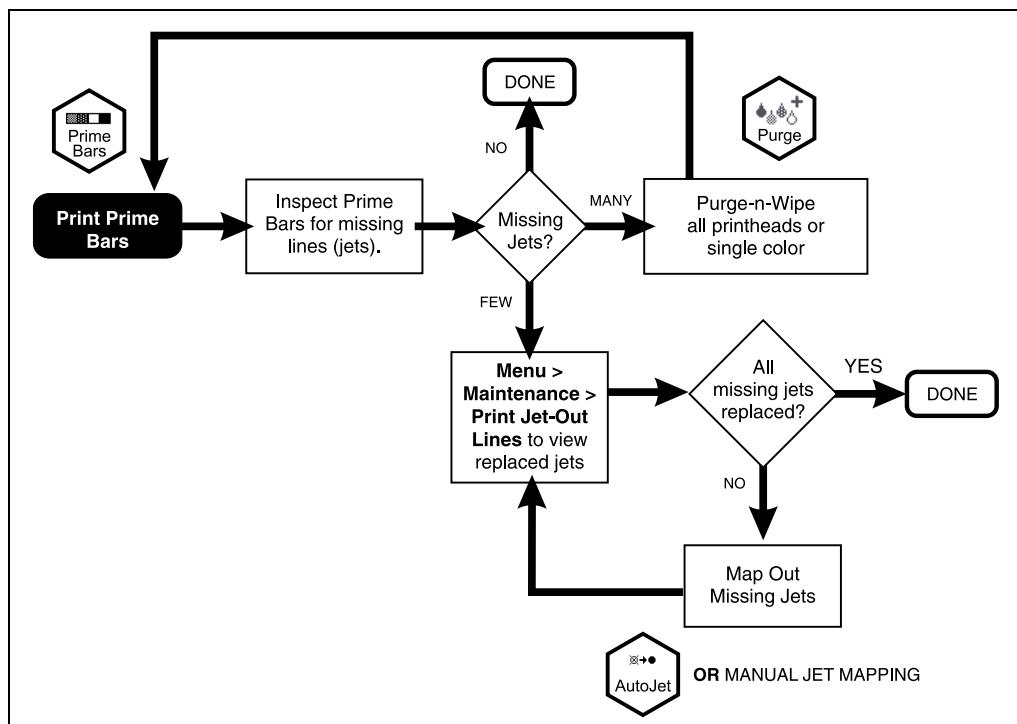


Fig. 3-1. Checking jet health and recovering jets

## Print Prime Bars



1. From the control panel Front Page screen, press the **Prime Bars** key.

The control panel displays a prompt asking you to enter the total width of the prime bar pattern you wish to print.

2. Enter a width for the prime bar pattern by pressing the **▼** and **▲** keys.
3. Press the **►** (Proceed) key to continue.

The printer prints the prime bar pattern. The prime bars will show correctly working jets with a solid line, and missing jets with no line.

## Purge-n-Wipe Printheads

When prime bars indicate missing or deflected jets, automatic jet maintenance should be supplemented by a Purge-n-Wipe operation: air pressure forces ink through the inkjets, then the service station dips the wipers in cleaning solvent and wipes the inkjet orifice plate.

You can purge all sixteen printheads at once or purge a single color (four printheads).

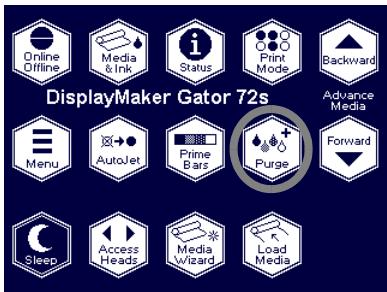
### To purge-n-wipe all sixteen printheads:

1. From the control panel Front Page screen, press the **Purge** key.

The control panel prompts you to press the **►** (Proceed) key to continue.

2. Press the **►** (Proceed) key to continue.

The printer purges the printheads with air pressure, then wipes them with the service station wipers. Approximately 1 milliliter of ink per color is expelled by this purge.



## To purge-n-wipe a color (four printheads):



1. From the control panel Front Page screen, press the  (Menu) key.
2. Press the  key to highlight **Maintenance**.
3. Press the  (Menu In) key.
4. Press  to highlight **Purge a Color**.
5. Press the  (Menu In) key.
6. Press the  (Proceed) key to continue.

The control panel displays a list of ink colors.

7. Press  repeatedly to select an ink color to purge.
8. Press  (Proceed) to continue.

The printer purges the printheads with air pressure, then wipes them with the service station wipers. Approximately 1.7 milliliters of ink per color are expelled by this purge (and the purges triggered by AutoTune and AutoRecover).

---

<b>Note</b>	Purging a single color is more effective because more pressure is applied to each printhead, but a possible side effect of repeated single-color purges is clogged jets in other colors. Repeated single-color purges should be followed by a purge of all printheads.
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## Print Jet-Out Lines



1. From the control panel Front Page screen, press the  (Menu) key.
2. Press the  key to highlight **Maintenance**.
3. Press the  (Menu In) key.
4. Press  to highlight **Print Jet-Out Lines**.
5. Press the  (Menu In) key.

The Jet-Out Lines pattern prints. Substituted jets are marked with a black square.

## Map Out Missing Jets

If the Jet-Out Lines (above) reveal an blank or wavy lines, the corresponding jets should be mapped out. For instructions, see "AutoJet" on page 4-3 or "Manual Jet Mapping" on page 4-15. When all missing jets have been substituted, printed output will appear as if all jets are working.

---

## Refilling Ink

The ink and cleaning solvent reservoirs each have a capacity of 3.5 liters. The refill bottles of ink contain 2 liters, while the cleaning solvent refill bottles contain 3 liters.

- ◆ **Ink** — When the reservoir ink level sensor inside one of the ink reservoirs detects 1 liter of ink remaining, the corresponding green “ready for refill” LED illuminates. This alerts the operator that the reservoir can be refilled, and that there are approximately 400 ml of useable ink remaining. When the printer detects that approximately 600 milliliters remains in the reservoir, the control panel will show a profiler status of 0% (see Fig. 3 on page 2-5). At this point, the reservoir ink level has fallen close to the point where the ink cannot be pumped to the printheads.
- ◆ **Cleaning solvent** — When the reservoir level sensor detects 250 milliliters of cleaning solvent remaining, its “ready for refill” LED illuminates. In this case, the control panel displays a warning, and the printer will not perform a service station visit or purge until the cleaning solvent is refilled.



**Caution** Do not “top off” or refill a reservoir until its LED illuminates. Always empty the entire contents of the refill bottle into the reservoir, and replace the profiler with the profiler that accompanies the new bottle of ink. Refilling ink or cleaning solvent in any manner other than that described above will result in erroneous refill indications.

---



**Caution** Use only genuine ColorSpan SolaChrome-HR inks and cleaning solvent in the printer. Use of any other inks or cleaning fluids **COULD DAMAGE THE PRINTER, WILL REQUIRE A SERVICE CALL, AND WILL VOID THE WARRANTY.**

---

1. When the LED over a reservoir illuminates, obtain a refill bottle of the corresponding color of ColorSpan SolaChrome-HR ink or cleaning solvent.
2. Shake the bottle of ink for one minute to redisperse the pigments.

It is not necessary to shake the cleaning solvent.

3. Open the reservoir cover and pour the entire contents of the refill bottle into the reservoir.

The LED blinks fast. This indicates that the refill was detected, and a new profiler is needed.

4. Remove the profiler from the previous ink or cleaning solvent supply, and discard it.
5. Insert the new profiler that came with the refill bottle into the docking station.

The LED blinks slowly, then goes out. This indicates that the new profiler was recognized and its data is being read. Keep the profiler in the docking station until the next refill.

---

## Capping the Printheads

Capping the printheads prevents the ink from drying out and clogging the ink jets. Since the ink jets are automatically exercised (a small amount of ink is expelled) when idle, capping is only necessary if the printer will be idle for a long period (overnight or longer).

Capping the printheads is one component of Sleep Mode:

- ◆ The printer enters standby mode, which also occurs after the printer has been idle: the heaters are switched off, and the supply & takeup system is detensioned.
- ◆ The OHS is disabled, which turns off power to the pumps.
- ◆ When you manually engage the capping levers, the capping station sensor is detected and the control panel disables most functions except for Wake.
- ◆



---

**Caution** Do not cap the printheads when they are full of cleaning solvent. This could result in lost inkjets when the printer is uncapped for printing.

---

### Cap the Printheads

1. Prepare the capping station by placing a sheet of SolaChrome Capping Film over the capping station pad. Fold the SolaChrome Capping Film underneath the capping pad, to allow any ink that escapes the printheads to flow into the drip tray.



---

**Caution** To cap the printheads, use only SolaChrome Print-head Capping Film. Damage to printheads resulting from the use of poorly performing plastic films is not covered by the printer warranty.

---

2. Press the **Sleep** key on the Front Page screen. The control panel asks you to confirm that you want to cap the printheads.
3. Press the Proceed key to cap the printheads. The printhead carriage moves quickly to the left end of the printer, over the capping station.
4. Engage the capping station by pulling forward on both levers simultaneously, until the capping pad touches the printheads and the carriage just begins to move up.



Do not raise the capping pad beyond this point.

5. Press Proceed.

The control panel displays the Front Page screen. Note that all but a few functions are disabled until you uncaps the printheads.

## Uncap the Printheads

Uncapping the printheads is one component of the Wake function, which reverses the Sleep function:

- ◆ The printer leaves standby mode: the heaters are switched on, and the supply & takeup system is tensioned (loaded).
- ◆ The OHS is enabled, which turns on power to the pumps.
- ◆ When you manually disengage the capping levers, the capping pad sensor is detected and the control panel enables all functions and displays the Sleep key.



### Tip

Since some ink may spill from the plastic-wrapped capping station pad, wear latex gloves to prevent staining your hands during this procedure.



1. Press the **Wake** key on the Front Page screen on the control panel.

The control panel asks you to confirm that you want to uncaps the printheads.

2. Press the ► (Proceed) key to uncaps the printheads.

The control panel prompts you to disengage the capping station pad.

3. Disengage the capping station.

Have a paper towel ready to blot any cleaning fluid that has escaped from the printheads during capping. If the Capping Film was applied as directed, most of the fluid should run off into the drip tray.

Grasp the two capping pad levers, and simultaneously push them toward the back of the printer to lower the capping station.

4. Remove and discard the SolaChrome Capping Film.

Carefully remove the Capping Film to avoid spilling ink on the floor or yourself.

5. To access the heads for cleaning, remove the capping station assembly by pulling it forward and out of the printer.

6. Wipe the printheads with SolaChrome-HR Cleaning Solvent, using a 100% polyester Class 100 cleanroom wipe. **DO NOT USE ISOPROPYL ALCOHOL ON THE PRINTHEADS.**

Remove ink buildup on the printheads and lower surfaces of the carriage.

7. Replace the capping station assembly by aligning it with and pushing it into its tracks in the printer.

The capping station assembly is “keyed” so that it can be inserted all the way in the correct orientation. If you cannot push the capping station all the way into place, turn it around and try installing it again.

8. Press the ► (Proceed) key.

The printhead carriage moves quickly to the right end of the printer, to the service station.

9. Press the ► (Proceed) key.

The control panel displays the Front Page screen.

10. Print the prime bars.

See “Print Prime Bars” on page 3-7 for instructions. After the printheads have been capped, the prime bars will reveal several missing jets.

11. Purge the printheads.

See “Purge-n-Wipe Printheads” on page 3-7 for instructions.

12. Repeat steps 10 through 13 until no unreplaced missing jets are revealed by the prime bars.

13. Run AutoJet or Manual Jet Mapping.

See page 3-8 for instructions.

## Loading Roll-Fed Media

The printer includes a tensioned supply and takeup system designed to handle vinyl and other heavier media on three-inch cores. The media handling system automatically detects the size of the supply and takeup rolls and provides consistent tension as the rolls change size during printing.

With the corresponding collets, media on 2-inch cores can be loaded onto the supply, but only 3-inch collets can be used on the takeup.



### Tip

Wear cotton gloves when loading media, or handle the media only by its very outside edges. This will prevent skin oils from being deposited on the media, which could be visible on printed output.

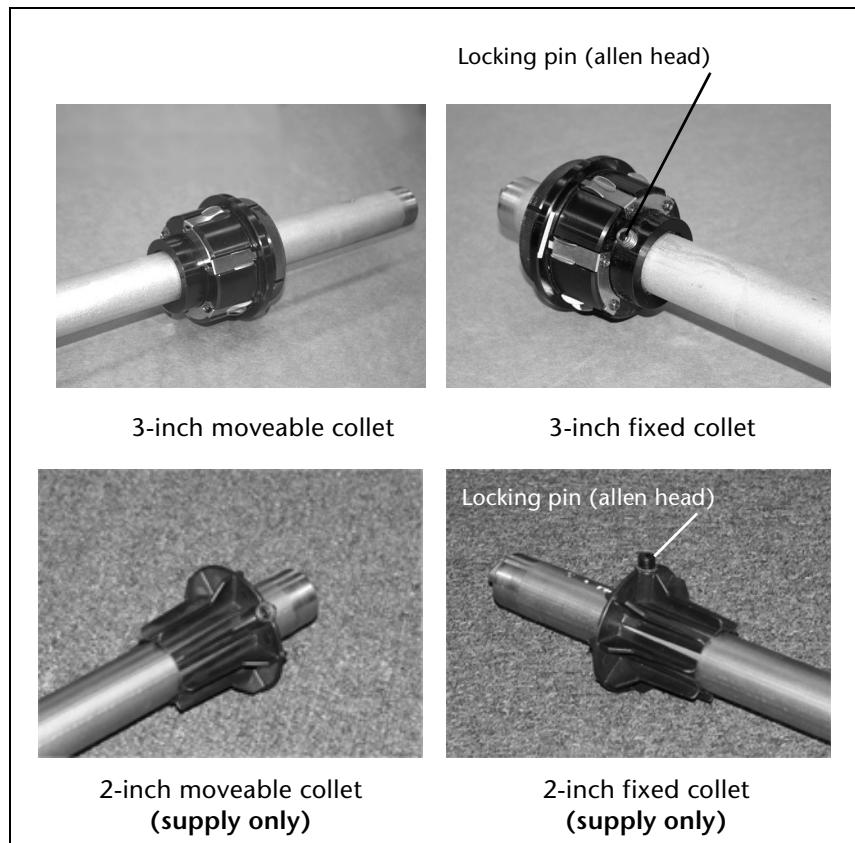


Fig. 3-2. 3-inch and 2-inch collets

1. Ensure that the fixed collet is properly located with the screw tightened into the inner hole on the supply spool (using the outer hole would prevent the spool from being installed).

The side of the spool with the fixed collet is the “home” side, closest to the printer’s electronics box.

2. Remove the moveable collet from the spool.



**Note** The 3-inch collets have *left-handed* threads that self-tighten during printing. Turn the locking ring clockwise to *loosen*, and counterclockwise to *tighten*.

3. Load the media roll onto the spool.

4. Load and secure the moveable collet against the end of the media roll.

The moveable collet does not have a metal pin. Push the collet into the media core, and (on 3-inch collets) turn the locking ring counterclockwise to secure it in place.

5. From the rear of the printer, load the media and spool into the printer’s supply spool holder.

Press the home side of the supply spool into the home side holder (on the left from the rear of the printer), then swing the far side of the supply spool into the far side holder (on the right).

You can load the supply spool so that the media either unspools from the bottom or the top of the roll (see Fig. 3-3 below). This enables you to print on either side of the media.

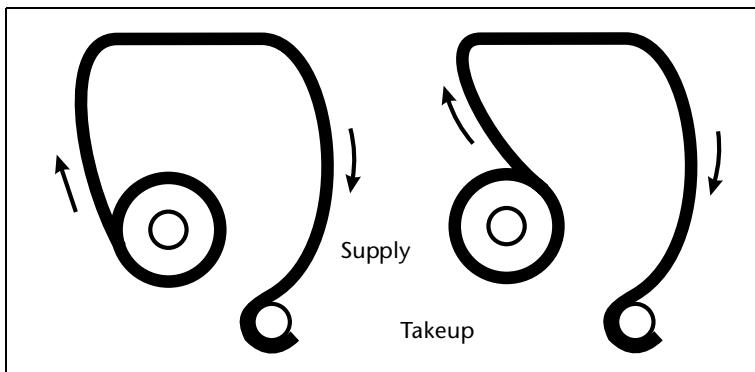


Fig. 3-3. Media path from supply to takeup

6. Ensure that the media is rolled onto the supply spool evenly, without “telescoping” to one side.
7. With your right hand, feed the leading edge of the media into the printer’s pinch rollers and hold it in place until the following step.

If loading 72 inch media, see “Loading 72-Inch Media” on page 3-20 for loading tips.



---

**Note** The printer automatically locates the right and left edges of the media, so it is not necessary to align the media edges to a reference mark on the platen.

---

8. With one hand, press the Media Advance button to advance media a few inches (several centimeters), until the media is approximately halfway between the pinch rollers and the postheater (middle of the platen).

The Media Advance button is located to the left of the postheater, on the rear of the printer next to the OHS.

9. While holding the left collet stationary, repeatedly press and release the Media Advance button several times, until the supply-side media web is tight with no wrinkles.

This causes the grit rollers to grip the underside of the media, eliminating tension variations across the width of the media.

Ensure that the right and left edges of the media web are perpendicular to the sides of the printer, that the tension appears uniform across the media web, and that the media is not unrolling unevenly (“telescoping”) from the supply spool.

If the media is telescoping, reverse the media out of the pinch rollers and repeat steps 8 and 9.



---

**Note** These checks ensure that the tension is uniform across the width of the media. This is critical to trouble-free printing.

---



10. On the Front Page screen of the control panel, press the Load Media key.

The control panel presents a list of media types. You can select a ColorSpan media from the list, or select Custom (at the end of the list) to specify a new media. The printer's Media Wizard feature stores a set of parameters for each media type, which can be recalled and applied whenever you change media types. (See "Media Wizard" on page 3-32 for details.)

11. Select the media type you are loading, or create a new media type.

The control panel displays the current settings for the media type you chose.



Fig. 3-4. Media settings

12. Press one of the change keys to change any of the settings, print mode, or media type, or press the ► key to continue.
  - ◆ If you press one of the change keys, a screen appears to allow you to change any of the settings. Then press the ► key to continue. See "Media Wizard" on page 3-32 for information about these settings.
13. Enter the length of the media roll (if it is a new roll) or the length remaining (if it is a partially used roll), and press the Enter key to continue.

To skip this step, press **Esc** without entering a value.

14. To advance the media, press  (Yes), otherwise press  (No) and go to the next step.

- ◆ If you press  (Yes), the media advances to the takeup spool. You can press **Stop** if necessary to stop the media advance at any time.
- ◆ If you press  (No), go to step 13.

15. Grasp the middle of the media web, pull straight back, route the media underneath the takeup core, and tape it to the takeup core as shown in Fig. 3-3 on page 3-15.

If necessary, you can use the arrow keys on the control panel screen to move the media forward or backward.



**Note**

With the fixed collets securely pinned to the supply and takeup spools (see Fig. 3-2), position the media on the takeup core in the same relative position as it is wound on the supply core. For example, if the media is positioned 0.125 inches from the left end of the supply core, it should be positioned the same distance from the left end of the takeup core. If necessary, the 3-inch collets on the takeup spool can be loosened so that the core can be moved to the right or left.

16. Press the key to continue.

The printer tensions the supply and takeup system, turns on the platen vacuum fans, and measures the width of the media by locating the right and left edges with the digital image sensor (camera) on the printhead carriage.

The control panel displays the Media Feed Number and a numeric keypad.

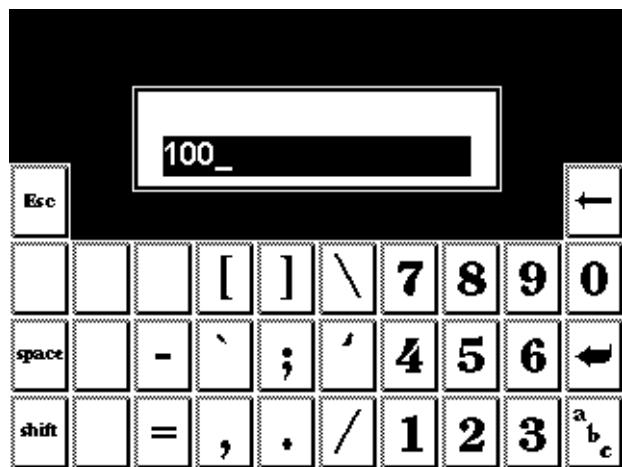


Fig. 3-5. Numeric entry screen

17. Accept the displayed Media Feed Number, enter a new number, or perform a Media Feed Calibration to generate a new Media Feed Number (see "Media Feed" on page 4-9 for instructions).

You are now ready to begin printing.

## Loading 72-Inch Media

The width of the 72-inch media makes it impossible for most persons to load it by grasping its left and right edges at the same time. Follow this procedure to more easily load 72-inch wide media.



### Tip

Wear cotton gloves when loading media, or handle the media only by its very outside edges. This will prevent skin oils from being deposited on the media, which could be visible on printed output.

1. With one hand, grasp the media at the center of its leading edge, and pull it forward into the center grit rollers.
2. While continuing to hold the center of the leading edge of the media in place, grasp the left edge of the media with your left hand.
3. Pull the left edge of the media into the leftmost grit rollers.
4. Hold the media in place with your left hand.
5. Grasp the right edge of the media with your right hand, and pull it into the rightmost grit rollers.
6. With both hands, feed the media web evenly into all grit rollers.
7. With your right hand, hold the media spool at the collet to prevent the spool from moving.
8. With your left hand, press the Media Advance button for 2-3 seconds. The grit rollers will spin beneath the stationary media, thus equalizing the tension on the roll.
9. Press the Media Advance button to finish loading the media.
10. Verify that the media web is even and unwrinkled across its width.
11. When loading the media onto the takeup spool, ensure that the media is tightly wound onto the spool across its width.
12. Return to step 10 on page 3-17 to finish loading the media.

---

## Unloading and Cutting Roll-Fed Media

1. Press the **▼** key on the Front Page screen to advance the printed portion of the media past the postheater.
2. On the Front Page screen of the control panel, press the **Unload** key.
3. The control panel prompts you to press **►** to unload media, or **X** to cancel.
4. Press **►** to continue.  
This detensions the supply and takeup spools.
5. Cut through the media with a utility knife along the cutting channel in the platen or below the postheater.

As you cut the media from the printer, hold it to prevent it from falling to the floor and possibly damaging it.



---

**Note** If you scratch the platen while cutting media, be sure to buff them out with a fine grade of sandpaper. Scratches in the platen can cause media feed inconsistencies, which can lead to head strikes and artifacts in printed output.

---

6. Take the single print or the entire takeup spool with printed output to your finishing area, and re-load the takeup system.
  - ◆ To re-load the takeup, from the menu, press the **Load** key on the control panel.

## Takeup Spool Pin Release

To quickly unspool a large amount of media from the takeup without damaging the takeup tension spring, you must first disengage the spool from the takeup system.

The spool is normally engaged to the takeup motor with a tab at the end of the spool. To disengage this tab, press the **Unload** key to detension the supply & takeup system, then insert the takeup spool pin release tool (supplied, part number 0504334) between the spool and the bracket that holds the spool. This allows the spool to spin independently from the takeup as you pull media from it. When you are ready to begin printing, remove the pin release tool and press the **Load** key on the control panel.

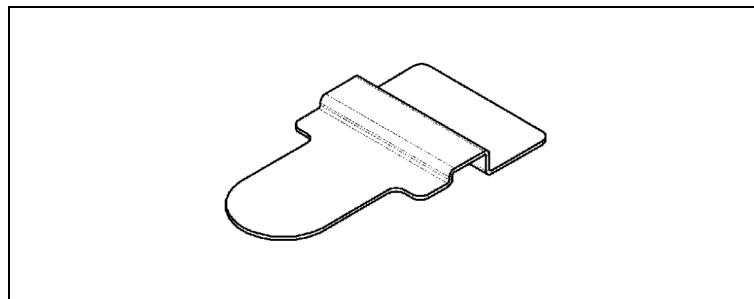


Fig. 3-6. Takeup spool pin release tool

## Respooling Media

The printer can respool media from one cardboard core to another. You may want to do this if:

- ◆ The media was not taped to its core by the media vendor, which makes tensioning impossible.
- ◆ You want to change the direction that the media unwinds from the core (printed side out vs. printed side in).

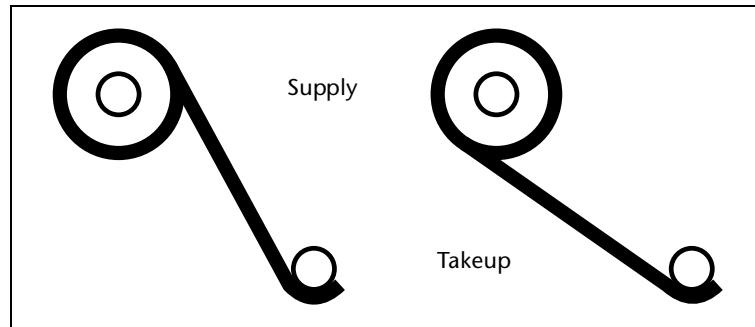


Fig. 3-7. Respooling load options

1. Load media on the supply.
2. Load an empty cardboard core on the takeup.
3. Slowly pull media from the supply spool to the takeup.

Do not pull the media faster than the supply motor releases it. Route the media directly to the takeup. Do not route it over the platen and heaters.

Ensure that the right and left edges of the media web are perpendicular to the sides of the printer, that the tension appears uniform across the media web, and that the media is not unrolling unevenly ("telescoping") from the supply spool.

4. Tape the end of the media to the takeup core.
5. Press the **☰** (Menu) key from the Front Page screen on the control panel to display the menus.
6. From the control panel menu, press the **▼** key to highlight **Maintenance**.
7. Press the **↷** (Menu In) key.
8. From the Maintenance menu, press the **▼** key to highlight **Respool Media**.
9. Press the **↷** (Menu In) key.



10. Press the ► (Proceed) key to respool the media.

The media is pulled from the supply spool onto the takeup spool. When the printer detects the end of the media, the respool function stops automatically.

## Loading Rigid Media

Printing on rigid media only applies to printer models with rigid media software and media handling features. Printers so configured have two media load states:

- ◆ **Unloaded** — the printer is ready to accept either roll-fed or rigid cut-sheet media
- ◆ **Loaded** — the Media Wizard has stored parameters for the currently-loaded cut-sheet media, allowing you to reload multiple cut sheets without reentering the Media Wizard

1. Move the media support tables into place at the front and rear of the printer.

To reduce media feed problems, ensure that the tables are securely assembled, level from left to right, and at the same height as the platen. Secure the tables to the printer with the elastic cords provided.

2. On the Front Page screen of the control panel, press the **Load Media** key.

The control panel presents a list of media types. You can select a ColorSpan media from the list, or select Custom (at the end of the list) to specify a new media. The printer's Media Wizard feature stores a set of parameters for each media type, which can be recalled and applied whenever you change media types. (See "Media Wizard" on page 3-32 for details.)

3. Select the media type you are loading, or create a new media type.

The control panel displays the current settings for the media type you choose.





Fig. 3-8. Media settings

If you are creating a new media type, you are prompted for the following settings:

- ◆ **Feed Method** — when you select Cut Sheet, the rigid media options are enabled throughout the Media Wizard.
- ◆ **Pinch rollers** — specify the pinch roller force setting as shown on the label located on the pinch roller lever. Use the lowest setting that holds the media in the rollers without marking its surface.

4. Press one of the change keys to change any of the settings, print mode, or media type, or press the ► key to continue.

- ◆ If you press one of the change keys, a screen appears to allow you to change any of the settings. Then press the ► key to continue. See "Media Wizard" on page 3-32 for information about these settings.

5. Enter the length of the media.

The control panel displays the prompt:

Load a sheet of media onto the printer

## Loading and Aligning the Sheet

6. Unload any roll-fed media from the printer.
7. Release the pinch rollers.
8. Slide a sheet of media onto the platen and through the pinch rollers.
9. Align the leading edge of the media with the front edge of the platen or with a row of platen vacuum holes.
  - ◆ For further detailed tips and tricks for printing edge-to-edge, overprinting, double-sided printing, and more with rigid media, refer to ColorSpan Tech Note #2730, "Straight-Through Paper Path: A Handbook for Users," available for free download at:

<http://www.colorsprint.com/support>

10. Set the pinch rollers as specified by the Media Wizard.
11. Press the ► key to continue.

The control panel asks whether you want to adjust the head height.

- ◆ If you press **Yes**, the control panel enters the head height, service station height, and bidi calibration procedures. (See Chapters 4 and 5 for instructions.)
- ◆ If you press **No**, the media load procedure continues.

The printhead carriage moves out of the service station and uses the onboard digital imaging sensor ("camera") to measure the width of the media, and to determine whether the sheet was loaded squarely into the printer. See Measure Media Type on page 2-13 for a description of the media measurement options.

If the imaging sensor is unable to measure the media, as may occur with clear or highly reflective media, the printer prompts you to locate the left and right edges by manually positioning the carriage.

12. If the media is skewed, the control panel asks whether you want to adjust it.
  - ◆ If you press **Yes**, you can release the pinch rollers, adjust the media, lower the pinch rollers, and press the Proceed key to continue.
  - ◆ If you press **No**, the media load procedure continues.

The control panel briefly displays the measured width of the media, then displays a numeric keypad so you can enter the length of the media.

13. Press the ► key to continue.

The control panel displays a screen that shows the following information:

- ◆ Media size
- ◆ Print area
- ◆ Right & left margins — if you enter 0 (zero), you can also specify an amount of overprint (printing past the edge of the media). This enables you to achieve an edge-to-edge printing effect without an unprinted border, especially if the media is skewed or not a perfect rectangle. Protect the platen with tape or a strip of media to catch the overprinted ink.
- ◆ Leading margin
- ◆ Trailing margin — 6.50 inches (165 mm) minimum to allow the pinch rollers to feed the media. If you set the Trailing Margin to 0 and want to print to the trailing edge, you must attach a trailer of the same media to the trailing edge so the pinch rollers can feed the media all the way past the print zone.

14. To change the margin settings, press the **Margin Settings** key; otherwise, press **Proceed**.

The printer moves the media to the proper position for printing.

The control panel displays the Media Feed Number and a numeric keypad.

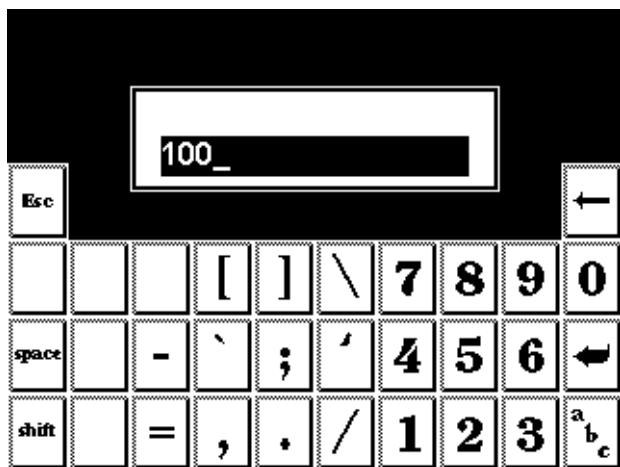


Fig. 3-9. Numeric entry screen

15. Accept the displayed Media Feed Number, enter a new number, or perform a Media Feed Calibration to generate a new Media Feed Number (see "Media Feed" on page 4-9 for instructions).

You are now ready to begin printing.

16. Press the **Online** key to receive a print job from the print server or RIP.

After a print job has finished printing, the media is automatically advanced (ejected) from the pinch rollers.



**Note**

Before a print job is received, you can unload the media at any time by pressing the **Unload** key on the Front Page screen of the control panel.

---

## Edge-to-Edge Printing

On rigid media, the printer can print up to the leading, right, and left edges when you set the margins to 0.

- ◆ Tape the platen under the left and right edges of the media to catch any oversprayed ink. Use a colored tape to allow the printer to find the media edges. A piece of media printed with a solid color also works for this purpose.
- ◆ Use the head height gauge to set the printheads to the standard height over the media. This will minimize ink overspray.
- ◆ From **Menu > Printer Settings > Margin Settings > Right and Left Margin, Leading Margin**, set the margins to 0. Optionally, you can set an Overprint distance to print past the edge.
- ◆ If you set the Trailing Margin to 0 and want to print to the trailing edge, you must attach a trailer of the same media to the trailing edge so the pinch rollers can feed the media all the way past the print zone.
- ◆ From **Menu > Printer Settings > Print Position**, center the image on the media.
- ◆ Enlarge the image slightly from the application or RIP if necessary to avoid an unprinted border.
- ◆ For further detailed tips and tricks for printing edge-to-edge, overprinting, double-sided printing, and more with rigid media, refer to Tech Note #2730, "Straight-Through Paper Path: A Handbook for Users."

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## Unloading and Reloading Rigid Media

After printing onto a sheet of rigid media, the Front Page screen displays a special **Load/Reload** key.

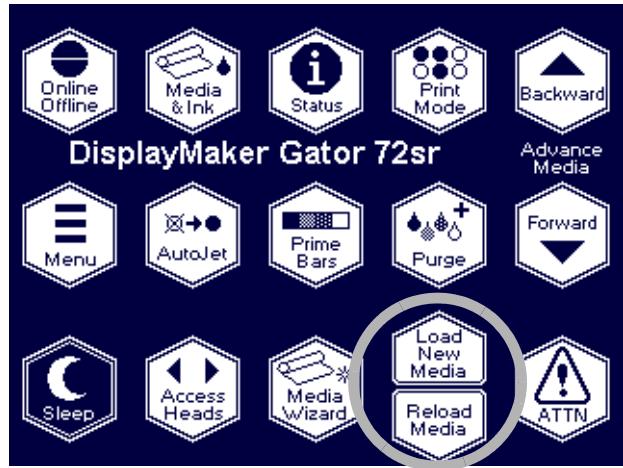


Fig. 3-10. Load/Reload key

- ◆ **Load New Media** — press this key to re-enter the Media Wizard and select a new media to load (either roll-fed or rigid cut-sheet)
- ◆ **Reload Media** — press this key to re-load the same media type, for example to print multiple copies of the same image

You can also press the **Unload** key to return the printer to an unloaded state. In this case, the Front Panel screen displays the standard **Load** and **Unload** keys.

## Media Wizard

The Media Wizard software feature stores a set of printing parameters by media type, enabling you to instantly optimize the printer whenever you change media. The Media Wizard includes standard sets of parameters for popular media types, and allows you to define new settings for media types you define.

The Media Wizard can store a different set of settings for each of the print modes (Billboard, Production, High), or use the same settings for all three modes.

The Media Wizard is accessible during the media load process (see “Loading Roll-Fed Media” on page 3-14) and from the Front Page screen (as follows).



### Tip

To use the Media Wizard most efficiently, start by using one of the standard media types. If you are not using a standard media type, select the standard media type that most closely matches the media you are using. Then only if necessary, create a new media type using the standard type you selected as a starting point, and adjust it as needed.



1. From the Front Page screen, press the **Media Wizard** key.

The Media Wizard menu appears. It contains the following options:

- ◆ **Media Settings** — displays the settings currently stored in the Media Wizard
- ◆ **Create Media Type** — creates a new media type using settings you specify
- ◆ **Delete Media Type** — deletes a user-created media type
- ◆ **View Media Types** — allows you to view each of the media types stored in the Media Wizard
- ◆ **Set Sort Method** — determines how the media list will be sorted.

2. When you select **Media Settings**, the control panel displays the current settings.
  - ◆ To change the current settings, press the **Media Settings** key.
  - ◆ To return to the Media Wizard menu, press the ► (Proceed) key.

For each media type, the Media Wizard stores the following settings:

- ◆ **Media name** — for user-defined media, use the alphabetic keyboard displayed on the control panel to enter the media name. (Standard media names cannot be changed.)
- ◆ **Media thickness** — for user-defined media, use the numeric keyboard displayed on the control panel to enter the media thickness (caliper). (Standard media thickness cannot be changed.) Thickness is used for reference only, so this can be left blank for custom media.
- ◆ **Feed method** — Roll or Cut Sheet.
- ◆ **Stiff media handling (roll fed)** — when enabled, detensions then retensions the takeup system before every print job, for more accurate feeding of adhesive-backed and other stiffer roll-fed media types.
- ◆ **Pinch rollers (cut sheet)** — adjustable pinch roller setting, from 1 (highest force) to 12 (lowest force). Select the lowest pressure that results in good media advance without leaving pinch roller marks on the media.
- ◆ **Media out sensor (cut sheet)** — detects when rigid cut sheet media is out. Normally enabled; disable only if the sensor is malfunctioning.
- ◆ **Measure width** — choose whether the media width should be measured automatically by the printer, or manually by the user.
- ◆ **Takeup tension (roll fed)** — select a tension setting from 1 (low) to 10 (high), or select 0 for idle (no tension).

Takeup tension is used to ensure that the media web feeds straight from supply and takeup, and lies flat on the platen. Use the lowest tension settings that allow correct media feed.

When the takeup tension is set to idle, printed output is not automatically wound onto the takeup spool. In this mode, however, a key appears on the control panel that enables you to wind the takeup spool manually. If the end of the media is taped to the takeup core, you can use this key to control how tightly the media is wound onto the core.

- ◆ **Supply tension (roll fed)** — select a tension setting from 1 (low) to 5 (high), or select 0 for idle tension.

- ◆ **Heater temps setting (for the post-heater/dryer) (roll fed)** — select a heater setting from 0 to 10, or Custom to specify custom settings. Setting 0 sets all heaters to 85° F (30° C).

The preheater and platen heater maintain uniform surface temperature across the printing area to control dot gain on various media. The postheater dries prints before being rolled onto the take-up spool. If prints are not drying, increase the postheater temperature; if media is deforming or sticking to the postheater, lower or turn off the postheater.

- ◆ **Platen vacuum fans** — this option turns on the vacuum fans, and displays ▲ and ▼ keys on the control panel. Press ▲ and ▼ to raise or lower the fan speed, and observe the media as the fan speed changes. If the media is lifting off the platen, increase the fan speed. If the media is sticking to the platen, decrease the fan speed.
- ◆ **Drying delay** — press the ▲ and ▼ keys on the control panel to increase or decrease the drying delay (seconds per print swath). To increase throughput, decrease the drying delay. If prints are not drying, increase the drying delay.

3. When you select **Create Media Type**, the Media Wizard displays a series of screens that enable you to enter each of the Media Wizard settings.

The current settings as shown on the Media Settings screen are used as default values. Change the defaults to suit the new media for each print mode.

4. When you select **Delete Media Type**, the Media Wizard shows a list of currently defined media. You can delete any user-defined media type.
5. When you select **View Media Types**, the Media Wizard allows you to browse through the settings for each of the media types and print modes.

## Setting Heater Temperatures

There are three heaters: a preheater, a platen heater, and post-heater. The postheater's top and bottom zones can be set to different temperatures.

The heater temperatures can be set during the media load process (see "Loading Roll-Fed Media" on page 3-14), from the Media Wizard (see "Media Wizard" on page 3-32), or from the menu (see the following procedure).



1. From the control panel Front Page screen, press the **☰** (Menu) key.
2. Press the **▼** key repeatedly to highlight **Printer Settings**.
3. Press the **↷** (Menu In) key.
4. Press the **▼** key repeatedly to highlight **Heater Temps Setting**.
5. Press the **↷** (Menu In) key.

The control panel displays a list of heater settings, numbered from 0 to 10 and "Custom."

6. Press the **▲** or **▼** keys repeatedly to select a setting.  
As you scroll through the settings, the temperature settings for each zone are shown at the bottom of the screen.
7. Press **▶** to select a setting, or **↶** to cancel.
  - ◆ If you selected Custom, a list of heaters appears so you can change the settings for each of the heater zones.
  - ◆ If you selected any other setting, go to step 9.
8. Select a heater zone and set a new temperature.  
If a Media Wizard type is currently loaded, the control panel asks whether to save the new setting in the Media Wizard for the currently loaded media.
9. Press **✓** to save the new settings in the Media Wizard, or **✗** to not save them.

Settings can be saved only for user-defined media, not for factory-defined media. The settings will be applied whether or not you save them in the Media Wizard. If you do not save them, they will be lost when you load a different media type or restart the printer.

The control panel advises you that it may take several minutes for heaters to reach the new temperature settings.



# CHAPTER 4

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## Calibrating the Printer

This chapter explains how to calibrate the printer for the best possible output:

- ◆ When to Calibrate (page 4-2)
- ◆ AutoJet (page 4-3)
- ◆ AutoTune (page 4-4)
- ◆ Auto Calibrations (page 4-7) — AutoBiDi Calibration, AutoH2H (Head-to-Head) Calibration, AutoJet Calibration, Full AutoSet
- ◆ Manual Calibrations (page 4-8) — Media Feed, Manual BiDi Registration, Manual X Head Registration, Manual Jet Mapping, Jet Status Lines, Default Registration Data
- ◆ Calibration Summary (page 4-22)
- ◆ Linearization (page 4-24)

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## When to Calibrate

The printer features several types of calibrations. Some should be run routinely, others only when necessary:

When to run	Calibration	Function
When Purge-n-Wipe does not recover all missing jets	<b>AutoJet</b> (page 4-3) or <b>Manual Jet Mapping</b> (page 4-15)	To identify and map out non-working jets.
When printing a large group of print jobs	<b>AutoTune</b> (page 4-4)	Automatic jet maintenance during extended printing periods
When loading a new media (but not when loading a new roll of the same media); after changing the head height	<b>Media Feed</b> or media feed adjustment during printing (page 4-9)  <b>Auto Bidirectional</b> (page 4-7) or <b>Manual Bidirectional</b> (page 4-13)	Media advance accuracy  Head calibration, run Manual when calibrating transparent or other media that the onboard digital image sensor cannot calibrate
When loading a new media (but not when loading a new roll of the same media)	<b>Color calibration</b> (page 4-24 or third-party RIP manual)	Linearization of colors

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## AutoJet

AutoJet detects individual ink jets that are misfiring or not firing at all. During subsequent printing, the printer compensates for these jets by using other jets in their place, ensuring maximum print quality without reducing print speed.

You can also identify and map missing jets manually from the Manual Calibrations menu (see “Manual Jet Mapping” on page 4-15). You may want to manually map weak or misdirected jets that AutoJet does not detect and substitute.

### To run AutoJet:

- ◆ Press the AutoJet button on the control panel Front Page screen (see page 2-9), or
- ◆ Select AutoJet Calibration from the Auto Calibrations menu (see “Auto Calibrations” on page 4-7), or
- ◆ Run AutoJet automatically with the AutoTune scheduler (see “Calibration Summary” on page 4-22)



**Note** AutoJet does not work with transparent media, nor with many translucent media. In this case, run Manual Jet Mapping.

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1. Press the **AutoJet** button from the Front Page screen or select AutoJet from the Auto Calibrations menu.

The printer asks whether you want the service station to perform a Purge-n-Wipe operation. By recovering clogged printheads, you reduce the number of jet substitutions required.

- ◆ Press ► to initiate a Purge-n-Wipe. The printheads are purged, then wiped.
- ◆ Press X to skip the Purge-n-Wipe.

2. The printer prints the AutoJet test pattern.
3. The printer reads the AutoJet test pattern and maps any missing jets to available working jets.

The control panel shows the progress of this operation as the percentage completed.

4. The printer prints an AutoJet report.

Where the report shows a head with some jets not replaced, you can manually map them out (see page 4-15).

## AutoTune

AutoTune runs jet maintenance automatically at intervals you specify. You can use the Quality Check Mode feature to handle AutoJet errors, with or without user intervention.



1. On the Front Page screen, press the **≡** (Menu) key to enter the menu system.
2. Press the **↷** (Menu In) key display the **Calibrate Printer** menu.
3. Press the **▼** key to highlight **AutoTune**.
4. Press the **↷** (Menu In) key.

The control panel displays the AutoTune status (off or current interval).

5. Press **▲** or **▼** to set the AutoTune interval.
6. Press **▶** (Proceed).

The control panel displays a list of services for AutoTune to run.

- ◆ Purge/Wipe
- ◆ Purge/Wipe & AutoJet
- ◆ AutoJet

**Tip** **Purge/Wipe** takes the least amount of time, **Purge/Wipe & AutoJet** takes the greatest amount of time. Select Purge/Wipe & AutoSet only if Purge/Wipe does not produce satisfactory results.



7. Select an AutoTune option to run.

8. Press the **✓** key, then the **↶** (Menu Out) key.

The control panel displays a confirmation message:

Setting completed.

9. Press the **↶** (Menu Out) key repeatedly until the Front Page screen is displayed. Press the Online/Offline button to return the printer to the Ready state.



### Note

When AutoTune is enabled, the selected operations will be executed as scheduled regardless of whether you initiate them manually from the control panel.

## Quality Check

When you run AutoJet manually, the software notifies you if there are any jet or alignment problems so that they can be addressed. When AutoTune runs AutoJet at scheduled intervals, you can use the Quality Check feature to handle AutoJet errors.

When Quality Check is enabled, if any missing jets are found that are not substituted by a working jet, or if BiDi Calibration or Media Feed Calibration have not been performed, the operator can be alerted by the control panel or the job can be routed to the Attention queue on the ColorSpan print server.



1. On the Front Page screen, press the **☰** (Menu) key to enter the menu system.
2. Press the **▼** key repeatedly to highlight **Printer Settings**.
3. Press the **↷** (Menu In) key display the **Printer Settings** menu.
4. Press the **▼** key repeatedly to highlight **Quality Check**.
5. Press **▶** (Proceed).

The control panel displays the Quality Check options.

- ◆ **Attended Mode** — user must press **▶** (Proceed) to acknowledge the error and print the job (if one is pending), or **✗** (Cancel) to cancel printing.
- ◆ **Unattended Mode** — no user acknowledgment of errors is required. When a quality check fails, print jobs are sent to the ColorSpan print server's Attention queue with a disposition of "Uncalibrated Printer" (this feature may not be supported by non-ColorSpan RIPS).
- ◆ **OFF** — no quality check is performed, all jobs will print.

6. Select a Quality Check option.
7. Press the **↶** (Menu Out) key repeatedly until the Front Page screen is displayed. Press the Online/Offline button to return the printer to the Ready state.

---

## AutoRecover

AutoRecover runs Purge-n-Wipe automatically at the beginning of a print job, when a specified number of minutes have passed since the last Purge-n-Wipe. This function is disabled by default. Enable it only if needed to keep jets working.

Running a Purge-n-Wipe operation before printing ensures the maximum number of working jets, but is not necessary before each print. If jets are becoming clogged or deflected, lower the AutoRecover interval. If jets are working well, increase the AutoRecover interval. Continuous printing encourages working jets and reduces the need for AutoRecover.



1. On the Front Page screen, press the **☰** (Menu) key to enter the menu system.
2. Press the **↷** (Menu In) key display the **Calibrate Printer** menu.
3. Press the **▼** key to highlight **AutoRecover**.
4. Press the **↷** (Menu In) key.

The control panel displays the AutoRecover status (off or current interval).

5. Press **▲** or **▼** to set the number of minutes since the previous Purge-n-Wipe before it will be run automatically at the start of the next print job.

To disable this function, scroll down past 1 to OFF.

6. Press **▶** (Proceed).

## Auto Calibrations



The printer's piezo printheads are aligned at the factory and should only occasionally require you to run an automatic bidirectional or head-to-head calibration.

1. On the Front Page screen, press the **☰** (Menu) key to enter the menu system.
2. Press the **↷** (Menu In) key display the **Calibrate Printer** menu.
3. Highlight **Auto Calibrations** and press the **↷** (Menu In) key.
4. Select one of the Auto Calibrations.
  - ◆ **AutoBiDi (bidirectional) Calibration** — ensures that every working jet fires a pixel at precisely the same location (regardless of the carriage direction of travel).
  - ◆ **AutoH2H (head-to-head) Calibration** — ensures that the printheads are in alignment relative to each other.
  - ◆ **AutoJet Calibration** — locates and substitutes missing jets for working jets. This is the same calibration performed as when you press the AutoJet button on the Front Page screen (see "AutoJet" on page 4-3).
  - ◆ **Full AutoSet** — runs AutoJet and Auto BiDi Calibration in sequence. The minimum media width allowed for AutoSet is 18 inches (46 cm).

When you select a calibration, the control panel prompts whether you want to perform a Purge-n-Wipe before continuing.

5. Choose whether to perform a Purge-n-Wipe.

By recovering clogged printheads, you reduce the number of jet substitutions required.

- ◆ Press **▶** to initiate a Purge-n-Wipe. The printheads are purged, then wiped.
- ◆ Press **X** to skip the Purge-n-Wipe.

Then the printer prints a test pattern then reads it and makes the necessary adjustments or jet substitutions.

## Manual Calibrations

When you run the calibrations from this menu, you evaluate the calibration test patterns visually and enter the calibration values via the control panel.



### Note

The manual BiDi and X head calibrations are time-consuming and can be error-prone, but is necessary when calibrating transparent media or other media that the printer's digital image sensor cannot calibrate.

Before calibrating the printer, first clean the printhead jets. See “Loading Roll-Fed Media” on page 3-14 for tips on detecting and recovering missing jets.



1. Press the **≡** (Menu) key from the Front Page screen on the control panel to display the menus.
2. Press the **↷** (Menu In) key display the **Calibrate Printer** menu.
3. Press the **▼** key to highlight **Manual Calibrations**.
4. Press the **↷** (Menu In) key.

The Manual Calibration menu consists of these options:

- ◆ **Media Feed** (page 4-9) — eliminates banding between print swaths (“stitch banding”) by calibrating media advance.
- ◆ **Manual BiDi Registration** (page 4-13) — the manual version of AutoBiDi Calibration.
- ◆ **Manual X Head Registration** (page 4-11) — the manual version of AutoH2H Calibration.
- ◆ **Manual Jet Mapping** (page 4-15) — the manual version of AutoJet.
- ◆ **Jet Status Lines** (page 4-21) — prints a quick test pattern that shows which jets are out.
- ◆ **Default Registration Data** (page 4-21) — sets all registration data to zero.

After calibration and jet mapping, perform a linearization or color calibration (as supported by your print server or RIP). For further information, see “Linearization” on page 4-24.

## Media Feed

This calibration allows you to calibrate the accuracy of the media advance. Inaccurate media advance can result in blank spaces between print swaths (too much advance) or overlapping swaths (too little advance). The Media Wizard stores this value by media type, and displays a media feed number (MFN), which you can record for subsequent entry.

The media feed number enables you to quickly specify a known good media feed setting without recalibration. For example, you could keep a list of media feed numbers by media type, or by media type and full, half, and nearly empty supply rolls.



### Tip

You can also adjust the media advance while a print job is printing. Repeatedly press the increase advance or decrease advance button shown on the control panel to eliminate blank spaces or overlap between print swaths. When you do this, the media feed number displayed on the control panel changes accordingly.

1. On the **Manual Calibrations** menu, highlight **Media Feed** (which is highlighted by default).
2. Press the (Menu In) key to select the option.
  - ◆ **Stitch pattern** — First, allow the printer to print the following number of swaths, depending on the mode you want to calibrate:
    - ◆ 16 swaths in Quality mode, or
    - ◆ 8 swaths in Production mode, or
    - ◆ 4 swaths in Billboard modeNext, press the key to increase the advance until you see blank spaces between swaths.  
Finally, press the key to decrease the advance until the blank spaces are eliminated, but avoid dark lines between swaths (which indicate overlap). This method allows for the tendency of the media advance to gradually decrease as the size of the supply roll decreases.
  - ◆ **34-inch calibration** — prints a 34-inch test pattern so you can verify its length with an accurate metal ruler. Cut the pattern from the media web, then measure and adjust the media advance as needed until the pattern is exactly 34 inches long.

- ◆ **10-inch calibration** — prints a 10-inch test pattern so you can verify its length with an accurate metal ruler. This is not as precise as the 34-inch calibration, but it uses less media. Measure and adjust the media advance as needed until the pattern is exactly 10 inches long.



**Tip**

To avoid cutting the 10-inch pattern from the media web, copy the marks from the 10-inch calibration to the long edge of a letter-size (or A4) sheet of paper. Then measure the transferred marks and adjust the media advance as needed until the marks are exactly 10 inches apart.

---



**Tip**

Run the 34-inch or 10-inch calibration first, then run the stitch pattern version to fine-tune the media advance accuracy.

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- ◆ **Input MFN** — enter the Media Feed Number that was displayed after a previous media feed calibration, to return to that setting without performing the calibration again.

## Manual X Head Registration

Precise positioning of each drop of ink is essential for optimal print quality. This is possible only if you register all printheads in the printhead assembly to each other in the X (along the length of the platen) direction.

This is a two-part process:

- ◆ Print a registration pattern.
- ◆ Enter the X registration data for each head.



**Note** This is the manual version of AutoH2H Calibration (see "Auto Calibrations" on page 4-7 for details).

1. On the **Manual Calibrations** menu, press the **▼** key repeatedly to highlight **Manual X Head Registration**.
2. Press the **►** (Menu In) key to select the option.

The control panel asks whether you want to print a manual head-to-head calibration page.

- ◆ If you have a calibration pattern from a recent print, you can use it to calibrate the heads. Press **X** (Cancel) and go to the next step.
- ◆ If you need to print a new calibration pattern, press **►** (Proceed). The printer prints a calibration page.

When the calibration page has printed, the control panel displays this prompt:

Take readings from left side of pattern.

3. Press the **►** key.

The control panel displays this message:

X Direction Registration  
Head 2: +0

4. Examine the X direction pattern (in the left-hand group of patterns) for the current head, and determine which pattern of colored and black lines are the closest to perfectly aligned.

Use a printer's loupe or magnifying glass if the patterns are difficult to see.

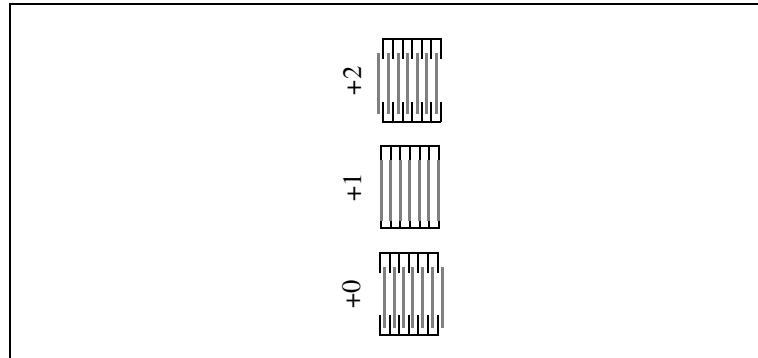


Fig. 4-1. Sample head calibration patterns.  
In this example, pattern "+1" is aligned the closest,  
so "+1" would be entered.

5. Press the **▲** or **▼** control panel keys repeatedly until the number next to the pattern that is closest to aligned perfectly is displayed.

For example, if pattern +1 is the closest aligned, press the **▲** key to change the display to:

X REG  
HEAD-1      +1

If a printhead is extremely out of alignment, there may be no pattern in alignment. Since the black vertical bars are five pixels apart, you can add +5 or -5 to a pattern number to shift the colored bars up or down by one black bar. Alternatively, you can repeatedly perform the X calibration, which will move the head in smaller increments, until the head is aligned.

6. Press **►** (Proceed).

The control panel message increments the head number by one.

7. Repeat steps 4 through 6 for each of the heads.

When you have entered registration values for all of the patterns, the control panel displays this message:

Registration successful.

## Manual BiDi Registration

Bidirectional registration is a method to align each of the print-heads so that dot placement is accurate in both directions along the X axis (along the direction of printhead travel).

The bidirectional registration pattern consists of a series of vertical lines. Half the pixels in this pattern are printed in one direction, half of them in the other direction. When the pixels are accurately aligned, the pattern is clear. When the dots are not aligned, the pattern appears fuzzy and ill-defined.



### Note

AutoBiDi Calibration is the automatic version of this calibration. Try AutoBiDi first before running this manual calibration (see "Auto Calibrations" on page 4-7 for details).

1. On the **Manual Calibrations** menu, press the **▼** key repeatedly to highlight **Manual BiDi Registration**.
2. Press the **►** (Menu In) key to select the option.
3. Press **►** (Proceed).

The control panel displays this prompt:

Print a manual bidi registration page?

4. Press **►** (Proceed).

The printer prints the calibration pattern you selected.

5. When the calibration page has printed, the control panel displays this prompt:

Bidi registration  
Head 1: 0

6. Examine the BiDi Registration pattern for the current head, and determine which pattern is the closest to perfectly aligned.

Use a printer's loupe to select the pattern, since the lines in the patterns may be difficult to see.

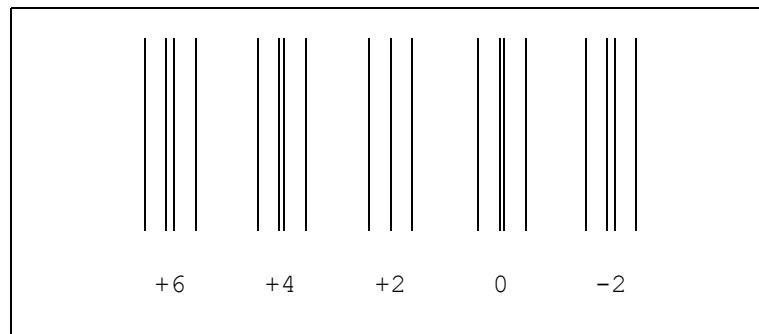


Fig. 4-2. BiDi Registration pattern.

7. Press the **▲** or **▼** control panel keys repeatedly until the number next to the pattern that is closest to aligned perfectly is displayed.

For example, if pattern +2.0 is the closest aligned, press the **▲** key to change the display to:

HEAD-1      +2.0

If a printhead is extremely out of alignment, there may be no pattern in alignment. Since the black vertical bars are nominally five pixels apart, you can add +5 or -5 to a pattern number to shift the colored bars right or left by one black bar. Alternatively, you can perform the BiDi Registration repeatedly, which will move the head in smaller increments, until the head is aligned.

8. Press **► (Proceed)**.

The control panel message increments the head number by one.

9. Repeat steps 6 through 8 for each of the twelve heads.

When you have entered registration values for all heads, the control panel displays this message:

Registration Successful

## Manual Jet Mapping

Jets that are missing or misfiring are usually detected by the AutoJet calibration. Alternatively, you can map out jets manually using the Manual Jet Mapping function. You may want to manually map weak or misdirected jets that AutoJet does not substitute.



**Tip** AutoJet is the automatic version of this calibration (see "AutoJet" on page 4-3 for details).



**Tip** For best results, print the prime bars and purge the printheads as necessary to ensure the maximum number of working jets. See "Checking Jet Health" on page 3-6 for instructions.

1. On the **Manual Calibrations** menu, press the **▼** key repeatedly to highlight **Manual Jet Mapping**.
2. Press the **►** (Menu In) key to select the option.

The control panel displays this message:

Print Jet Map?

If you have a calibration pattern from a recent print, you can use it to calibrate the heads. Press **✗** (Cancel) and go to the next step. Otherwise, press **►**.

The printer prints a jet map test pattern.

Head 1		
96	95	94
93	92	91
90	89	88
87	86	85
84	83	82
81	80	79
78	77	76
75	74	73
72	71	70
69	68	67
66	65	64
63	62	61
60	59	58
57	56	55
54	53	52
51	50	49
48	47	46
45	44	43
42	41	40
39	38	37
36	35	34
33	32	31
30	29	28
27	26	25
24	23	22
21	20	19
18	17	16
15	14	13
12	11	10
9	8	7
6	5	4
3	2	1

Fig. 4-3. Sample jet mapping pattern (Head 1 of 16)

- ◆ If a line segment is missing or broken, the jet number shown next to it is out.
- ◆ If a line segment is marked with a code letter:

R - no replacement

S - user disqualified "soft" jetout

H - user disqualified "hard" jetout

D - disqualified (and replaced) by AutoJet

3. When the calibration pattern has printed, the control panel displays a menu with the following options:
  - ◆ **Report individual soft bad jets** — enables you to report a “soft” bad jet, which can be automatically reenabled if AutoJet finds it working.
  - ◆ **Report individual hard bad jets** — enables you to report a “hard” bad jet, which will not be checked or reenabled by AutoJet.
  - ◆ **Clear individual bad jets** — enables you to clear (mark as good) a jet.
  - ◆ **View current bad jets** — lists the bad jets on a given printhead.
  - ◆ **Clear all bad jets** — clears (marks as good) all jets currently marked as unusable.

Select an option and follow the corresponding procedure below.

### Report Individual Bad Jets

When you select Report Individual Bad Jets, the control panel displays the following prompt:

Head 1:  
Press Proceed to report a bad jet.

4. Press **▲** and **▼** to select a head number, then press **►** (Proceed).

The control panel displays a numeric keyboard that you can use to enter the number of the bad jet.

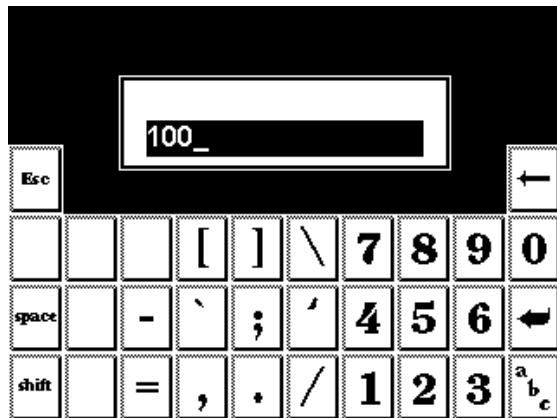


Fig. 4-4. Numeric entry screen

5. Enter the jet number, then press the Enter key.
6. When you are finished entering jet numbers, press the Esc key.  
The control panel displays the head selection message again.
7. Press **▲** and **▼** to select the next head number, then press **►** (Proceed).
8. Repeat steps 5 through 7 for each head containing bad jets you want to report.
9. When you are finished reporting bad jets, press **×**.  
The control panel displays the previous menu.

### Clear Individual Bad Jets

When you select Clear Individual Bad Jets, the control panel displays the following prompt:

Head 1:  
Press Proceed to clear a bad jet.

10. Press **▲** and **▼** to select a head number, then press **►** (Proceed).  
The control panel displays a numeric keyboard that you can use to enter the number of the bad jet.
11. Enter the jet number, then press the Enter key.

12. When you are finished entering jet numbers, press the Esc key.  
The control panel displays the head selection message again.
13. Press ▲ and ▼ to select the next head number, then press ► (Proceed).
14. Repeat steps 11 through 13 for each head containing bad jets you want to clear.
15. When you are finished clearing bad jets, press ✗.  
The control panel displays the previous menu.

### **View Current Bad Jets**

When you select View Current Bad Jets, the control panel displays the following prompt:

Head 1:  
Press Proceed to view bad jets.

16. Press ▲ and ▼ to select a head number, then press ► (Proceed).  
The control panel displays a message that lists the bad jets by number.
17. Press ► to return to the head selection screen.
18. Repeat steps 16 and 17 for each head you want to check for bad jets.
19. When you are finished clearing bad jets, press ✗.  
The control panel displays the previous menu.

### **Clear All Bad Jets**

When you select Clear All Bad Jets, the control panel displays the following prompt:

Are you sure you want to clear  
ALL reported bad jets?

- ◆ Press ✗ to cancel this function, or
- ◆ Press ► (Proceed). The control panel displays this message:  
Do you want to clear the hard bad jets?
  - ◆ Press **No** to clear the soft bad jets only.
  - ◆ Press **Yes** to clear both the hard and soft jets.

The control panel displays this message:

All reported bad jets have been cleared.

20. Press ►.

When you have finished mapping jets, the following summary appears on the control panel:

- x soft jets currently reported bad.
- x hard jets currently reported bad.
  - x new soft bad jets reported.
  - x new hard bad jets reported.
  - x previous soft bad jets cleared.
  - x previous hard bad jets cleared.

where x is the number of jets.

<b>Jet Status Lines</b>	This option prints the Manual Jet Mapping test pattern (see Fig. 4-3 on page 4-16) that shows which jets are working, and which jets are out, but does not run the Manual Jet Mapping calibration (see “Manual Jet Mapping” on page 4-15 for information).
<b>Default Registration Data</b>	This option resets all registration data. Since there is no registration data after running this option, all calibration values must be reestablished by running the calibrations.

## Calibration Summary

These options allow you to print a summary of the Full AutoSet calibration, or transmit calibration data to a log file on the print server.

- ◆ **AutoSet Summary** — when enabled, a table of the results of the Full AutoSet calibration is printed after the AutoSet test patterns. When you enable the AutoSet Summary, you can show or hide the detailed calibration data.

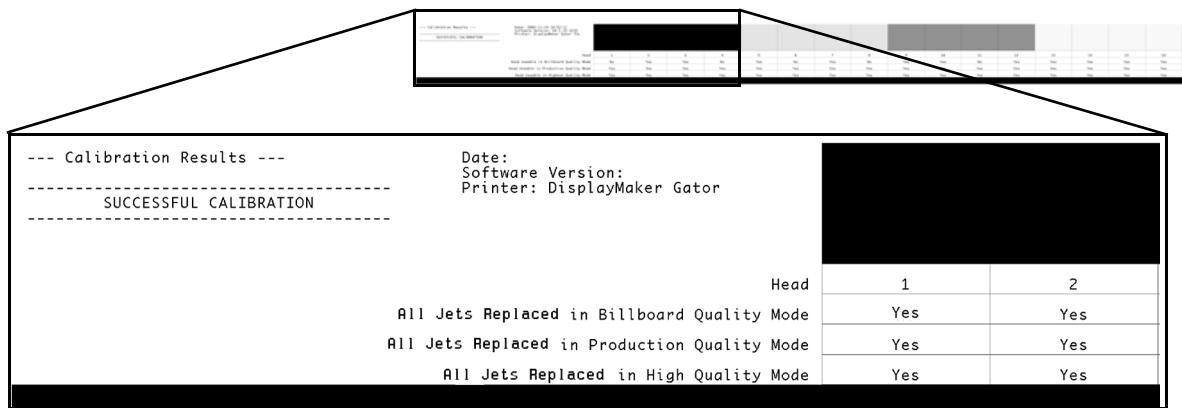


Fig. 4-5. AutoSet Summary

- ◆ **Log Head Registration Data** — sends head registration data to a log file on the print server.
- ◆ **Log Jet Data** — sends jet data to a log file on the print server.

---

## Straightening the Media Path

For optimal print quality, the media must feed in as straight a line as possible from the supply to the takeup. This can be accomplished by aligning the sides of the media as straight as possible from supply to takeup, and by smoothing the media web as much as possible before attaching it to the takeup. See “Loading Roll-Fed Media” on page 3-14 instructions.

**Printer assembly** also affects the media path. If the printer is not assembled to the stand precisely, according to the instructions in Chapter 1, they could be misaligned. This could lead to the media “steering” to the right and left as it is wound onto the takeup spool.

**Leveling and stabilizing the stand** also helps to straighten the media path:

- ◆ Locate the printer on a flat, level surface
- ◆ Ensure that all four leveling feet contact the floor and adjust them as necessary to level the printer (or align the printer in a single plane)
- ◆ Securely tighten the two silver screws that attach the printer to the stand

**For rigid cut-sheet media**, the input and output tables must be leveled with the printer platen. See page 1-21 for instructions.

---

## Linearization

As the density of an image varies from highlights to shadows, or from lighter tints to darker tints, the printer should accurately reproduce these areas in a predictable, or linear, fashion. The process of linearization (or color calibration) involves printing and reading color test patches, and calibrating the printer to ensure that the expected and printed densities will match. This in turn will ensure optimal color matching.

You should perform a color calibration when:

- ◆ You notice a shift (change) in color output
- ◆ Changing ink types or sets
- ◆ Changing media types
- ◆ Changing print mode (only if the most precise color matching is required)

Color calibration is a feature of the print server or RIP connected to the printer. Refer to the documentation that accompanies the print server for further information.



**Tip** For best results, be sure that the color calibration patches are dry before taking readings.

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**Tip** If the camera height is not reset after changing the head height, a resulting color shift could necessitate performing a color calibration or creating a new color profile (with the ColorMark+ advanced color management system or third-party RIP). To avoid this, always reset the camera height after changing the head height.

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# CHAPTER 5

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## Maintaining the Printer

This chapter describes how to maintain the printer:

- ◆ Maintenance Schedule (page 5-2)
- ◆ Clean the Rail and Bearings (page 5-3)
- ◆ Empty Excess Ink (page 5-6)
- ◆ Printhead Maintenance (page 5-7)
- ◆ Cleaning Clogged Ink Jets (page 5-8)
- ◆ Set the Printhead and Camera Height (page 5-11)
- ◆ Calibrate the Service Station (page 5-16)
- ◆ Replace Ink Filters (page 5-18)
- ◆ Extended Power Down and Restart (page 5-21)

## Maintenance Schedule

The printer is designed for low-maintenance operation. Most operator-performed maintenance is performed on the print-heads.

Task	Description
<b>Interval: Weekly or as needed</b>	
Clean pinch rollers	Inspect for ink and dust buildup, if necessary wipe with lint-free cloth moistened with SolaChrome-HR Cleaning Solvent.
Clean carriage rail and bearings (page 5-3)	Inspect for ink and dust buildup, clean if necessary (see "Clean the Rail and Bearings" on page 5-3).
Clean printheads	See "Checking Jet Health" on page 3-6. To recover jets that are unrecoverable with the automated Purge-n-Wipe, see "Cleaning Clogged Ink Jets" on page 5-8.
Clean platen area	Carefully wipe ink from the platen with a cloth moistened with SolaChrome-HR Cleaning Solvent, especially near the right and left edges.
Inspect service station wipers for ink buildup and clean as needed	Inspect the service station wipers for ink buildup. If found, clean the wipers with a lint-free cloth moistened with SolaChrome-HR Cleaning Solvent.
<b>Interval: As needed</b>	
Adjust service station height (page 5-16)	Compensates for the reduced effectiveness of the wipers after they have been exposed to inks and cleaning solvent for an extended period.
Calibrate the service station (page 5-16)	Aligns the service station wipers to the centers of the printheads.
Clean capping station	With the printheads uncapped, the capping station assembly can be pulled straight forward and out of its tracks. Clean the capping pad with cleaning solvent.
Clean spittoons	Clean with cleaning solvent and lint-free cloth.
<b>Interval: At control panel warning</b>	
Empty excess ink (page 5-6)	The excess ink containers on the printer stand legs should be emptied when half full. When the container under the service station is full, the control panel displays an Action message, and no further Purge-n-Wipes and idle spits will occur until the container is emptied.
Replace ink filters (page 5-18)	Replace all five filters as a set, to prevent ink pump failure. The control panel will display a Warning message when 20 liters of ink have passed through the set of filters. You may continue printing past this point, but printhead fill errors may occur.

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## Clean the Rail and Bearings

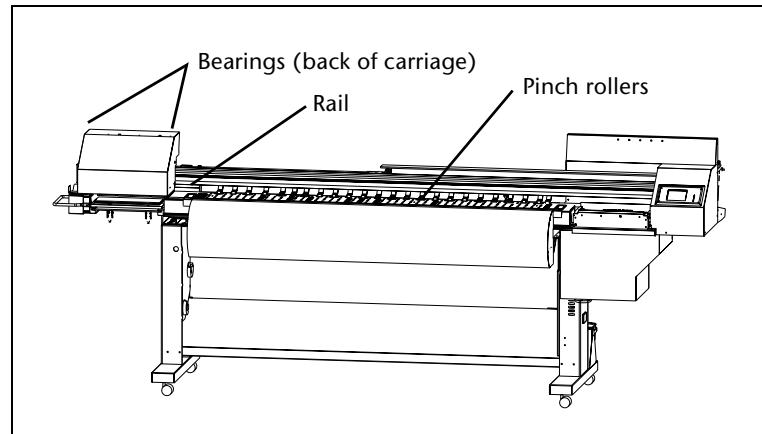


Fig. 5-1. Location of rollers, bearings, and rail

The carriage rail carries the printhead carriage across the width of the platen. As dust and ink accumulates on the rail, the material could accumulate on the carriage bearings (wheels) and cause banding in printed output or noisy ("click-click-click") carriage motion.

### Pinch Rollers

1. Wipe the pinch rollers with a lint-free cloth or wipe moistened with isopropyl alcohol.



**Caution** **DO NOT ALLOW ISOPROPYL ALCOHOL TO TOUCH THE PRINTHEADS**, especially the inkjet orifice plates. Contact with the ink could cause the ink to coagulate, rendering the printhead unusable and requiring it to be replaced. Be sure that cleaned surfaces have dried before printing.

---

**Rail** 2. Wipe the entire length of the rail with a lint-free cloth or wipe moistened with isopropyl alcohol.

The rail surfaces that must be clean are the surfaces that touch the carriage bearings. These are the top surface, including the front and back of the front lip, and the side surface, behind the belt. Move the carriage manually or press the Carriage key on the control panel Front Page so you can access and clean the entire rail.

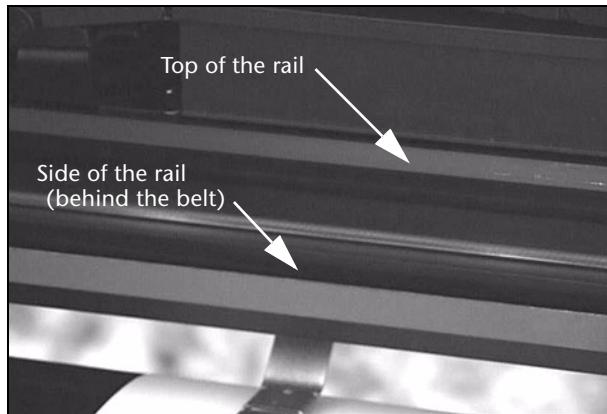


Fig. 5-2. Cleaning the rail

### Carriage Bearings

3. From the control panel Front Page screen, press the **Access Heads** key.

The carriage moves out of the service station to the access carriage position. The bearings are on the back of the carriage.

There are four bearings that should be kept clean, one pair on each end of the carriage. Each pair of bearings rolls along the front and back of the lip on the top of the rail. If any buildup occurs on one of these bearings, banding or other artifacts could appear in printed output. This buildup can range from a fine dust to visible particles.

The fifth bearing rolls along the lower edge of the rail, behind the belt. Cleaning this bearing is not necessary, since it usually does not get dirty.

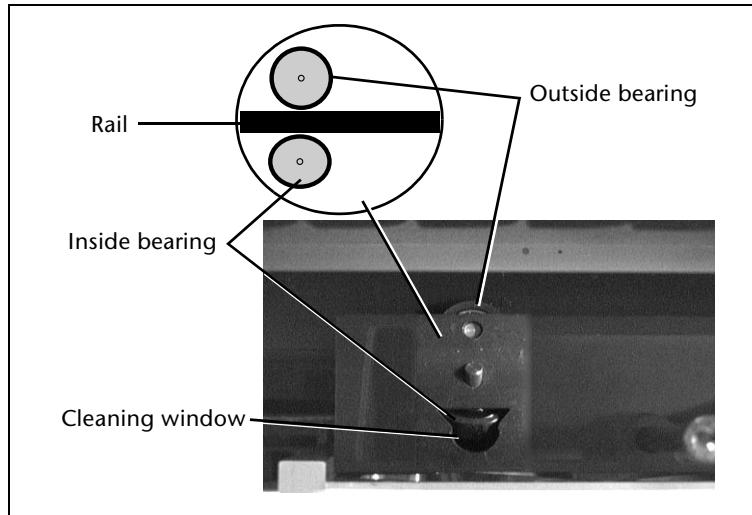


Fig. 5-3. Carriage bearings, left pair shown

4. Clean the left and right outside bearings.

Moisten a cotton swab with isopropyl alcohol or water, place it against the left side of the bearing, and manually push the carriage to the left. Then place the swab against the right side of the bearing, and manually push the carriage to the right. Repeat once or twice. Remove any large dust particles you see.

5. Clean the left and right inside bearings.

Insert a moistened cotton swab into the bearing cleaning window, and clean the bearing by manually pushing the carriage to the left and right. Repeat once or twice. Remove any large dust particles you see.

6. Press the ► (Proceed) key to return the carriage to the home position.

## Cleaning the Encoder Strip

The top surface of the encoder strip should be cleaned as needed (approximately monthly under typical service) with a lint-free cloth moistened with SolaChrome-HR cleaning fluid. After cleaning, wipe the top surface of the encoder strip with a new lint-free cloth moistened with isopropyl alcohol. To check the condition of the encoder, view it with a piece of white paper held underneath it. The encoder strip should be cleaned if the encoder index marks (fine black lines that are perpendicular to the length of the encoder strip) are not clearly visible.

---

## Empty Excess Ink

Ink or cleaning solvent that has been expelled (“spit”) for ink jet maintenance or from a purge operation drains from the spit-toons and service station areas to excess ink containers. When the containers fill with ink, they should be emptied.

The excess ink container near the service station will need to be emptied when it is full or near full. This can be determined by visual inspection or when the float sensor reports a full condition via the control panel.

The ink in the excess ink container near the capping station may evaporate at or near the same rate as it is collected, so it may never fill the container. Visually check the amount of ink periodically, and empty the container as needed.

Have a paper towel ready to catch the small amount of ink and cleaning solvent that will spill out of the drain tube as you disconnect it. The excess ink container’s tray is designed to catch these spills for easier cleanup. You may also want to wear protective gloves during this procedure.

1. Close the stopcock valve on the drain tube.  
This prevents ink from continuing to flow out the end of the tube.
2. Disconnect the drain tube from the excess ink container.
3. (Service station reservoir only) disconnect the sensor cable from the float sensor.
4. Lift the container out of its tray.
5. Empty the excess ink and cleaning solvent into a solvent disposal container.



**Note** Dispose of ink and cleaning solvent only according to the Material Safety Data Sheet (MSDS) and applicable laws and regulations. The MSDS is available on the MacDermid ColorSpan web site ([www.colors.com](http://www.colors.com)).

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6. Replace the container in its tray.
7. Reconnect the drain tube to the container.
8. Open the stopcock valve on the drain tube.
9. (Service station reservoir only) reconnect the sensor cable to the float sensor.

---

## Printhead Maintenance

The printer uses air pressure to both fill and evacuate ink and cleaning solvent from the printheads. The following functions are available from the menu at **Maintenance - Printhead Procedures**:

- ◆ **Cleaning Solvent Soak** – empties the printheads of all ink, fills all heads with cleaning solvent, and prompts you to cap the printheads. Reverses this process after the printheads have soaked (for example, overnight). See page 5-9 for instructions.
- ◆ **Prep for Storage/Shipping** – empties the printheads of all ink, fills all heads with cleaning solvent, then empties the printheads. See “Extended Power Down and Restart” on page 5-21 for instructions.
- ◆ **Load Ink In All Heads** – when installing ink for the first time, or when restarting the printer after an extended power down period, this function fills the empty printheads with cleaning solvent, empties the printheads, and fills the heads with ink. See “Extended Power Down and Restart” on page 5-21 for instructions.
- ◆ **Fill Heads with Solvent** – fills the printheads with cleaning solvent, one color set of four printheads at a time. Should only be done with empty printheads.
- ◆ **Fill Heads with Ink** – fills the printheads with ink, one color at a time. Should only be done with empty printheads.
- ◆ **Empty Heads (Fill With Air)** – empties all printheads by purging the ink and cleaning solvent with air.
- ◆ **Cyan Heads Maintenance** – performs two purges, then fills the heads with cleaning solvent four times, then empties the heads, and then fills them with ink again. Perform this function every time the printer is idle for 24 hours, to keep the cyan printheads working. (If the printer is printing daily, the Cyan Heads Maintenance is not necessary.) Follow up with the procedure “Checking Jet Health” in Chapter 3 of the User Manual to keep all jets are working.

---

## Cleaning Clogged Ink Jets

All printers that use solvent-based inks are susceptible to print-head clogging. This is caused by the solvent evaporating and leaving behind the pigments, which is desirable on printed output but not in the printheads!

The printer incorporates many automatic and manual features for preventing clogs from occurring, and for recovering ink jets that do become clogged.

To recover clogged ink jets:

- ◆ **Purge-n-Wipe** — all sixteen heads can be purged at once, or one color set (four heads) can be purged for increased pressure.
- ◆ **Manual cloth wipe** — if repeated Purge-n-Wipes fail to recover enough jets, you can wipe them manually with a 100% polyester, Class 100 cleanroom cloth soaked with SolaChrome-HR cleaning solvent. A manual wipe is also recommended after uncapping the printheads (see “Uncap the Printheads” on page 3-12 for instructions).

### DO NOT USE ISOPROPYL ALCOHOL ON THE PRINTHEADS.



To access the heads for cleaning, select **Access Heads** from the control panel Front Page, then after the carriage has moved over the capping station, remove the capping station pad by pulling it forward and out of the printer. Wipe the printheads and any areas of the carriage that have collected ink. Then press **Proceed** on the control panel to return the carriage to the service station. If it appears that the service station is not wiping the printhead properly, it may be misaligned or too low (see “Calibrate the Service Station” on page 5-16).

- ◆ **Cleaning solvent soak** — if a manual cloth wipe fails to recover enough jets, you can soak the thin foam pad that ships with the printer with SolaChrome-HR cleaning fluid, then cap the printheads with this pad overnight as shown (Fig. 5-4 on page 5-9).

**DO NOT USE ISOPROPYL ALCOHOL ON THE PRINTHEADS.**

From the menu, select **Maintenance - Printhead Procedures - Cleaning Solvent Soak**. This process empties the printheads of ink, fills them with cleaning solvent, and prompts you to cap the heads. After several hours (overnight), uncap the printheads and the process is reversed.

This procedure should only be performed if necessary to recover jets. Using this as a routine preventative measure is unnecessary and ineffective.

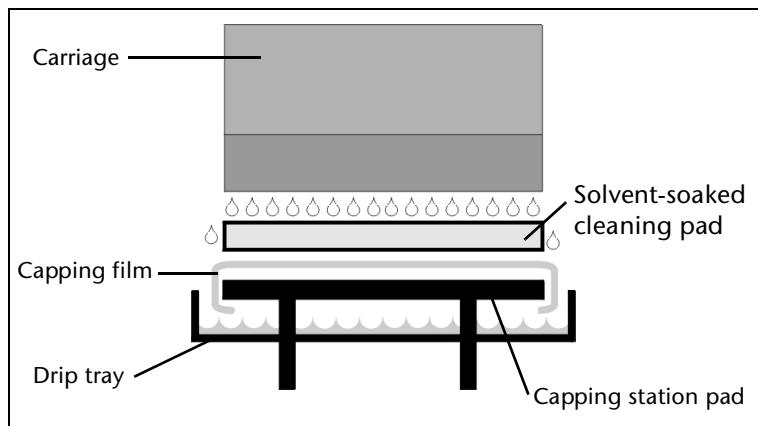


Fig. 5-4. Using the cleaning foam pad on the service station

- ◆ **Cleaning the Service Station doctor blade** — with use over time, the doctor blade that cleans excess ink from the service station wiper blades will accumulate a buildup of ink. This will reduce the cleaning effectiveness of the doctor blade, resulting in “dirtier” wiper blades and more clogged printhead jets. To keep the inkjets clear, regularly inspect and clean the doctor blade with SolaChrome-HR Cleaning Solvent.

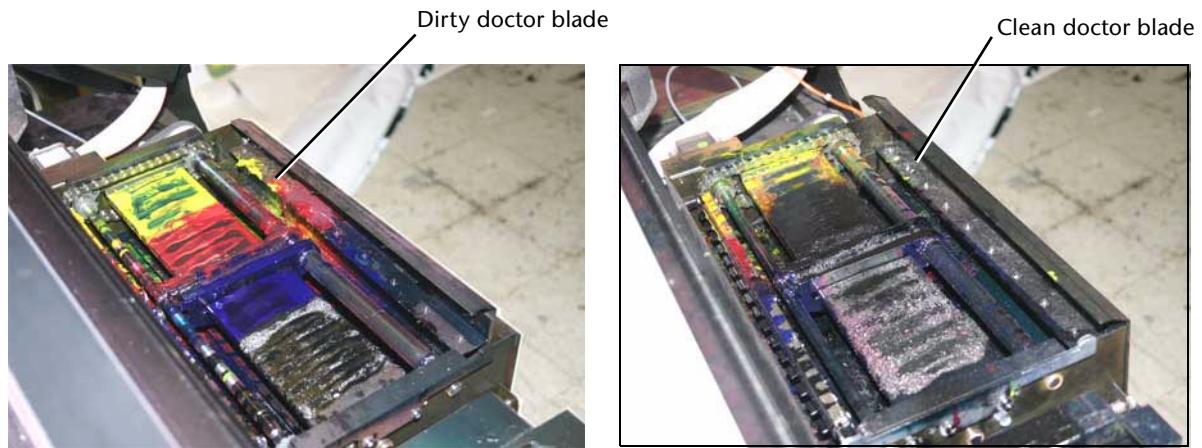


Fig. 5-5. Cleaning the doctor blade

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## Set the Printhead and Camera Height

The correct head height is critical to output quality.

- ◆ **Lower head heights** reduce overspray, increasing image quality, but also increase the chance of the printheads striking the media. Printhead strikes are most likely with adhesive-backed vinyls and cut-sheet rigid media that is not perfectly flat.
- ◆ **Higher head heights** increase overspray, decreasing image quality, but also decrease the chance of printhead strikes.

As a general rule, use the supplied head height gauges to set the head height above the media, and do not change it unless you switch between roll-fed and rigid cut-sheet media.

If you change the printhead height, you should also reset the height of the “camera” (digital imaging sensor) so that its lens can focus accurately to perform the automatic calibrations. The camera is attached to the carriage in a separate enclosure that can be raised and lowered independently of the printheads.

Checking the service station height and recalibrating it if necessary is also recommended after changing the printhead height.

The following procedure shows how to use the supplied gauge(s) and a Phillips head screwdriver to set the head and camera heights above the media loaded on the printer.

The printer includes a single gauge for head height on one end, and camera height on the other end. The head height gauge locates the head 0.100 inches above the media.



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### Tip

If you notice an unacceptable change in color quality after changing the head height, perform a ColorMark color calibration (“linearization” on a third-party RIP) or create a new profile.

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1. Load the media that you want to calibrate.  
For instructions, see “Loading Roll-Fed Media” on page 3-14.
2. On the Front Page screen, press the **☰** (Menu) key to enter the menu system.
3. From the control panel menu, press the **▼** key to highlight **Printer Settings**.
4. Press the **↷** (Menu In) key.
5. From the Settings menu, press the **▼** key repeatedly until **Head Height** is highlighted.
6. Press the **↷** (Menu In) key.  
The carriage moves out over the platen.
7. Position the stepped end of the gauge next to the carriage, anywhere over the platen (see **A** and **B** in Fig. 5-6 below).  
Do not measure the head height from the surface of the posttheater.

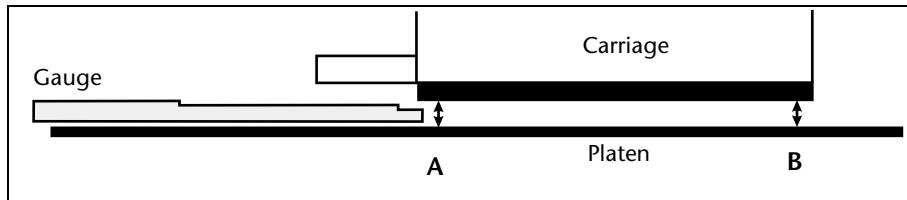


Fig. 5-6. Head height measurement points A and B



**Tip**

To lower or raise the printheads without the gauge, use two hex wrenches to turn the head height adjustment screws (at the top of the carriage) simultaneously and by the same number of turns (or fractions of a turn). Then go to step 12 to set the camera height.

8. Use the supplied hex wrench to turn one of the head height adjustment screws counterclockwise until the end of the gauge will *not* fit under the carriage as shown in Fig. 5-6.  
The head height adjustment screws can be accessed from the top of the carriage. The access holes are labeled with a white circular label.

**Caution**

Do not allow any part of the gauge to touch the printheads, and do not leave the gauge on the platen after setting the head height. If the gauge is allowed to touch or strike the printheads, the printheads could be damaged permanently and require replacement.

9. Turn the head height adjustment screw clockwise, just until the end of the gauge slides under the carriage.

**Caution**

Do not allow the taller surface of the gauge to slide under the printhead carriage. Damage to the printheads or carriage could result.

10. Remove the gauge and repeat steps 7 through 9 at the other side of the carriage.
11. Verify the heights at both sides of the carriage and adjust if necessary.
12. Remove the carriage cover.

The carriage cover is attached to the carriage with three screws at the top, and two screws on each side (see Fig. 5-7 below).

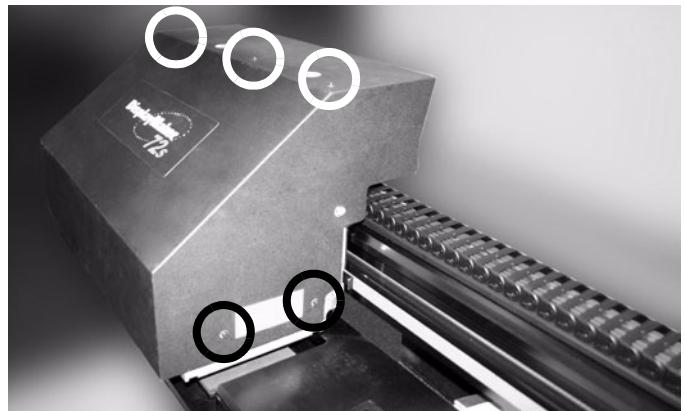


Fig. 5-7. Location of carriage cover screws

13. Loosen the three camera enclosure mounting screws (see Fig. 5-8 below).

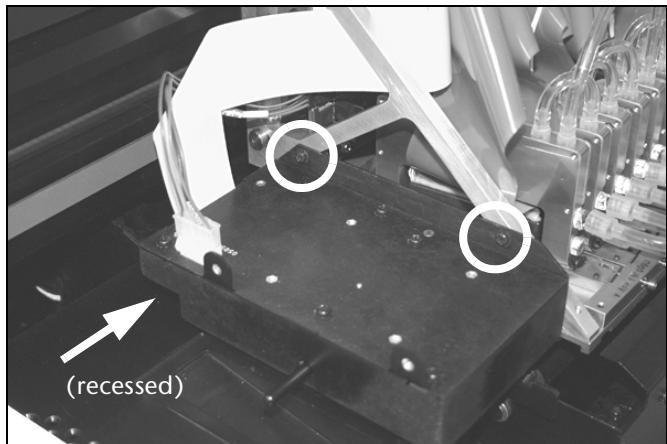


Fig. 5-8. Camera enclosure mounting screws

14. Set the camera height.

Insert the plain (non-stepped) end of the gauge as shown in Fig. 5-9 below.

Raise or lower the camera enclosure so that it touches the top of the gauge.

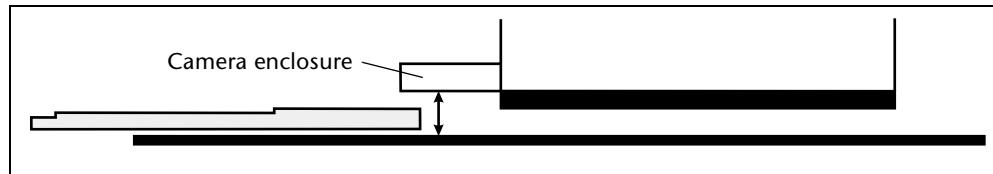


Fig. 5-9. Camera height measurement point

15. Tighten the camera enclosure mounting screws.

16. Replace carriage cover and screws.

17. Press ► to return the carriage to the service station.

The control panel displays a message asking whether you want to calibrate the service station. See “Calibrate the Service Station” on page 5-16 for instructions.

18. Press ✓ to calibrate the service station, or ✗ to continue.

The control panel displays a message asking whether you want to perform a bidirectional (bidi) calibration.

19. Press ✓ to perform a bidi calibration, or X to continue.
20. Observe a Purge-n-Wipe cycle to ensure that the service station wipers are centered and properly deflected during a wipe.
  - ◆ If the wipers are not centered, see “Calibrate the Service Station” on page 5-16 for instructions.
  - ◆ If the wipers do not touch the service station or are over-deflected, see “Calibrate the Service Station” on page 5-16 for instructions.

## Calibrate the Service Station

Service station calibration enables you to properly align the service station wipers to the printheads. When properly aligned, the service station wipers should be centered on the printheads.

Setting the service station height should not be necessary unless the printhead height is changed by a large amount, or you notice that the service station wipers are not wiping the printheads adequately.

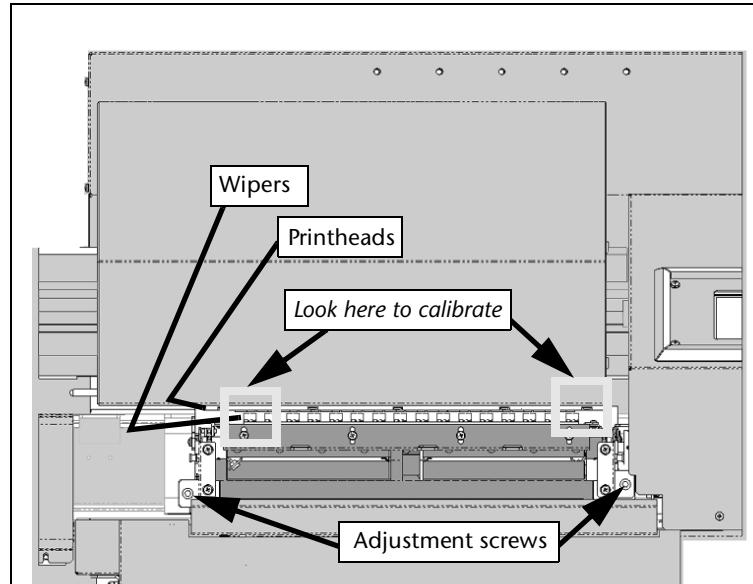


Fig. 5-6. Service station (cover removed for clarity)



1. On the Front Page screen, press the **≡** (Menu) key to enter the menu system.
2. Press the **▼** key repeatedly to highlight **Service Printer**.
3. Press the **↷** (Menu In) key display the **Service Printer** menu.
4. Press the **▼** key repeatedly to highlight **Service Station**.
5. Press the **↷** (Menu In) key.

The control panel prompts you to confirm that you want to calibrate the service station.

6. Press ► (Proceed).

The control panel displays a message asking whether you want to calibrate the service station position. If you choose to do so, the control panel walks you through the procedure. Shine a flashlight through the carriage cutouts (see Fig. 5-6 on page 5-16 for location) to see how the wiper at the left and right ends aligns with the printhead above it.

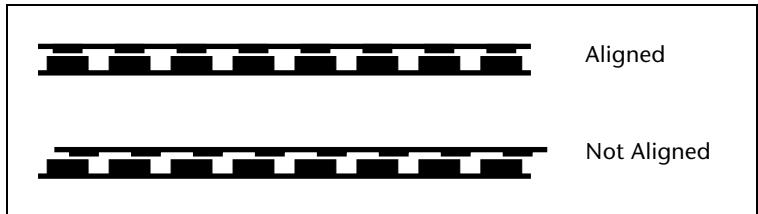


Fig. 5-10. Service station alignment

7. Press ► (Proceed).

The control panel displays a message asking whether you want to change the height of the service station. If you choose to do so, the control panel displays a message that explains how to set the service station height. Use the supplied hex wrenches to turn the adjustment screws on the left and right sides of the carriage simultaneously, to ensure that the service station remains level.

When properly adjusted, the wipers would just touch the pin plate between the printheads. It may be necessary to misalign the carriage as shown below to precisely measure this distance. At this height, after the carriage is realigned to the service station, the wipers will contact the printheads with the correct amount of deflection. See Fig. 5-7 below.

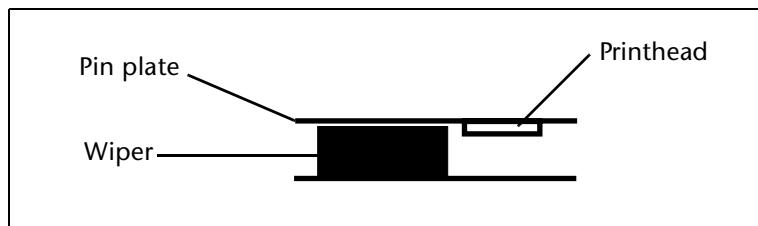


Fig. 5-7. Service station height measured by wiper contact with the pin plate

## Replace Ink Filters

The control panel displays a Warning message on the control panel when 20 liters of ink has passed through the filters. Replace all five the filters as a set. Failure to replace the filters when recommended will eventually cause the filters to clog and prevent ink from reaching the printheads.

Have a paper towel ready to catch the small amount of ink or cleaning solvent that will spill out of some of the tubes and the filter itself as you disconnect them. The reservoir shelf is designed to catch these spills for easier cleanup. You may also want to wear protective gloves during this procedure.

1. Disconnect the tube from the ink or cleaning solvent reservoir.

Unscrew the tube connector and disconnect the tube. See Fig. 5-11 for location.

2. Disconnect the level sensor cable from the reservoir.

Press down on the cable connector tab to release the connector. See Fig. 5-11 for location.

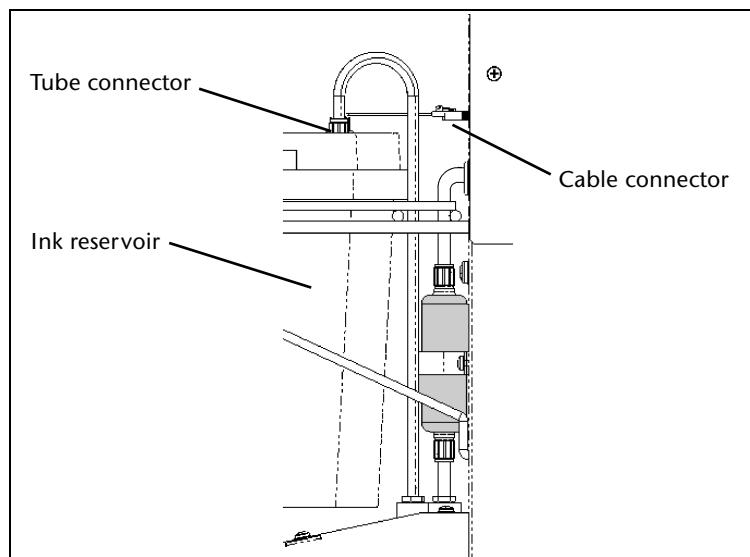


Fig. 5-11. Reservoir connections

3. Remove the reservoir from the shelf.

4. Use a Phillips screwdriver to loosen the filter clamp.  
See Fig. 5-12 for location.

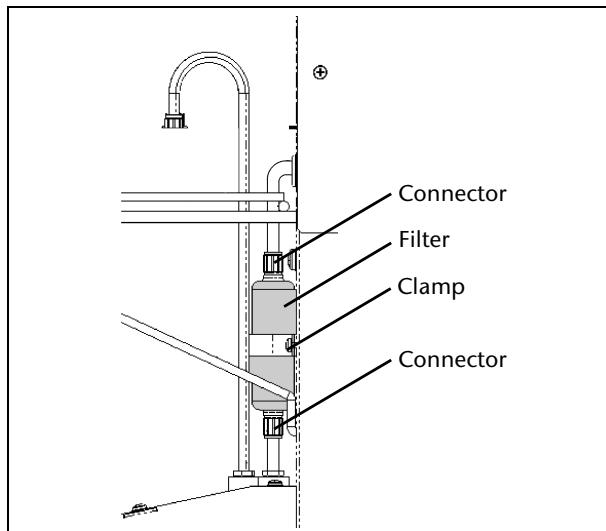


Fig. 5-12. Filter connections

5. Unscrew the hose connectors from filter.  
See Fig. 5-12 for location.
6. Remove the old filter.
7. Install the new filter into the filter clamp.  
The filter's label has an arrow that indicates the direction of flow. Install the filter with the arrow pointing up.
8. Tighten the filter clamp.  
The filter should be secure, but do not overtighten the screw.
9. Connect the hoses to the top and bottom of the filter, and tighten the connectors.
10. Replace the reservoir.
11. Reconnect the tube to the reservoir, and tighten the connector.  
See Fig. 5-11 for location.
12. Reconnect the level sensor cable.  
See Fig. 5-11 for location.



13. Reset the ink float sensors by switching off power to the printer, allowing the printer to shut down, then switching on the power.
14. On the Front Page screen, press the **☰** (Menu) key to enter the menu system.
15. Press the **▼** key repeatedly to highlight **Maintenance**.
16. Press the **↷** (Menu In) key display the **Maintenance** menu.
17. Press the **▼** key repeatedly to highlight **Reset Reservoir Filters**.
18. Press the **↷** (Menu In) key.

You can reset an individual reservoir's filter, or all filters. The ink volumes for each filter are shown on the printer Status pages (**Front Page > Status**).

19. Inspect the bottom of the ink reservoir for thickened ink. If present, dispose of the ink or replace the reservoir.

The pigments will settle out of the ink over time and accumulate on the bottom of the reservoir. If allowed to continue to accumulate, this ink could eventually cause ink flow problems or clogging errors.

---

## Extended Power Down and Restart

**UNDER NORMAL OPERATION, DO NOT POWER DOWN THE PRINTER.** Constant vacuum at the printheads is required to prevent ink from running out of the printheads.

If the power must be removed for a brief period of time, you can leave the carriage over the service station (not the capping station) to allow the ink, which will no longer be held inside the printheads by the vacuum/pressure system, to drain into the excess ink reservoir. Power up the printer as soon as possible and cap the printheads if the printer will be idle for four hours or more.

Optionally, you can maintain power to the vacuum system for a brief period of time by using the auxiliary 24 volt power supply, included in the printer accessory kit. For details, see “Connecting to Power” on page 1-22. This will prevent ink from running out of the printheads, but may not prevent the printheads from drying out. If the printer will be powered down for an extended period, follow the procedure below.

### Power Down

If it is necessary to power down the printer for an extended period, for example in order to store or ship it, empty the ink from the printheads, and cap the heads.

1. Unload media, if any is loaded (see “Unloading and Cutting Roll-Fed Media” on page 3-21).
2. On the Front Page screen, press the  (Menu) key to enter the menu system.
3. Press the  key repeatedly to highlight **Maintenance**.
4. Press the  (Menu In) key display the **Maintenance** menu.
5. Press the  key repeatedly to highlight **Prep for Storage/Shipping**.
6. Press the  (Menu In) key.
7. Cap the printheads.  
See “Cap the Printheads” on page 3-11 for instructions.
8. Switch the power switch to the off position.

### Restart

To restart the printer, follow the procedure below.

1. Switch the power switch to the on position.
2. Uncap the printheads.  
See “Uncap the Printheads” on page 3-12 for instructions.

3. On the Front Page screen, press the **☰** (Menu) key to enter the menu system.
4. Press the **▼** key repeatedly to highlight **Maintenance**.
5. Press the **↷** (Menu In) key display the **Maintenance** menu.
6. Press the **▼** key repeatedly to highlight **Load Ink in All Heads**.
7. Press the **↷** (Menu In) key.
8. Load media.  
See “Loading Roll-Fed Media” on page 3-14 for instructions.
9. Recover missing jets.  
See “Checking Jet Health” on page 3-6 for instructions.

# CHAPTER 6

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## Print Server Setup

This section of the manual shows how to use the ColorSpan print server to control the printer and printing operations on the server. It explains:

- ◆ **Configuring and Controlling the Printer** (page 6-2) — Viewing Printer Status, Configuring the Printer, Selecting Server Options
- ◆ **Selecting Server Options** (page 6-7) — Configuring the Input Port, Attention Queue Jobs, Tiling
- ◆ **Color Management** (page 6-18) — using the ColorSpan or ICC workflow to ensure color accuracy for specific ink and media combinations
- ◆ **Color Calibration** (page 6-22) — ensures color consistency between prints

For complete instructions on using the ColorSpan print server, refer to the *System Control User Guide*.

If you are using a third-party RIP, refer to the documentation that accompanies it for details.

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## Configuring and Controlling the Printer

Printer configuration and control functions can be accessed by clicking and holding the mouse over the printer icon. This displays the icon menu shown below:



Fig. 6-1. Printer icon menu

The following functions are explained in this section:

- ◆ Status (page 6-3)
- ◆ Configure (page 6-5)
- ◆ Control (page 6-7)

For detailed instructions on operating the print server interface, refer to the *System Control User Guide*.

Refer to the *ColorSpan Printing Tools User Guide* for instructions on installing the printer driver and utility software.

Refer to Chapter 7, Printer Driver Setup, for instructions on configuring the printer driver software.

## Viewing Printer Status

To view the printer's status:

1. Position the cursor on the printer icon.
2. Press and hold either mouse button to display the printer menu.
3. Select Status from the printer menu.

The following dialog box appears:



Fig. 6-2. Printer Status dialog box

## Printer Status

This is the printer's current state, such as Ready or Printing.

## Software

This is the version number of the printer's embedded software.

## ColorMark CMS

- ◆ **Version** — the version of ColorMark Color Management System (CMS) software currently installed for this printer.
- ◆ **Ink Type** — not detected in software, always ColorMark Gator Solvent Ink.

## Approximate Ink Remaining

This shows the volume (in milliliters) of ink remaining in each reservoir, and whether the corresponding profilers are installed. The profilers enable the print server to precisely track ink and cleaning solvent usage.

See “Checking Jet Health” on page 3-6 for instructions on how to properly refill ink and cleaning solvent.



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**Note** Replace the profiler when you refill the ink or cleaning solvent. Failure to replace the profiler will disable ink counting and eventually cause an “out of ink” error, regardless of how much ink is in the reservoir.

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## Configuring the Printer

1. Position the cursor on the printer icon.
2. Press and hold either mouse button to display the printer menu.
3. Select **Configure** from the printer menu.

The following dialog box appears.

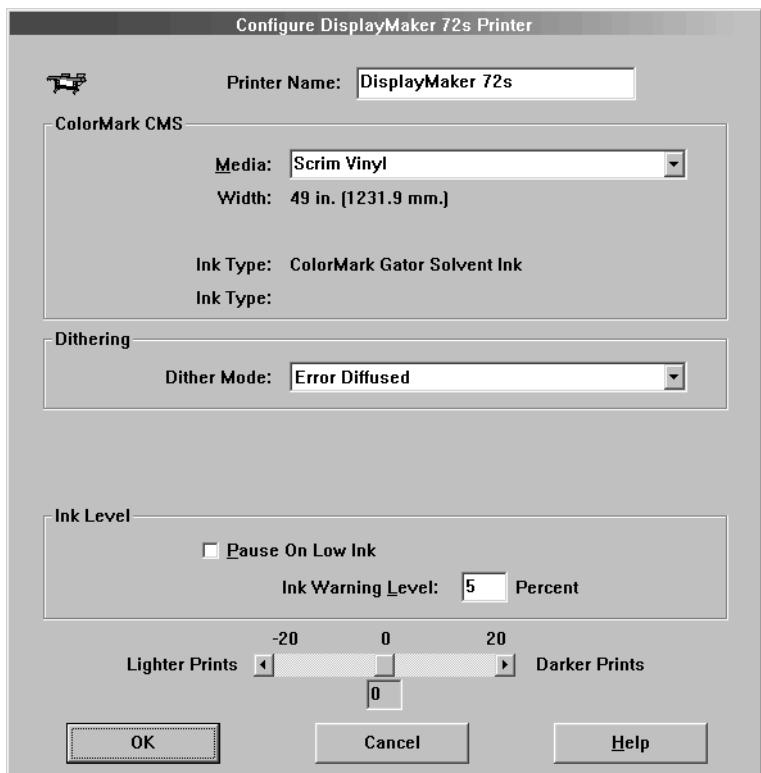


Fig. 6-3. Printer configuration dialog box

### 4. Set or verify the printer configuration.

This dialog box is described on the following pages.

## Printer Name

This name identifies the printer. It appears under the Printer icon in System Control and in various dialog boxes.

## ColorMark CMS

- ◆ **Media** — for accurate color matching and/or linearization, specify the media type loaded in the printer. If a print job specifies a different media, the job is routed to the Output Attention queue with a disposition of Media Mismatch.
- ◆ **Width** — width of the media, as measured by the printer.
- ◆ **Ink Type** — type of ink installed, as detected by the printer.

## Dithering

- ◆ **Dither Mode** — **Threshold Dithering** is an efficient screening method that produces good results. Select **Error Diffusion** screening for the smoothest appearance, but is more resource-intensive on the server, and may cause the print-head to pause when printing large files in the fastest print mode.

## Ink Level

- ◆ **Pause On Low Ink** — when enabled, and the amount of ink for a given color reaches the level you set in the **Ink Warning Level** field, the printer pauses between pages so that you can replace the ink supply. A warning will be given and the printer will pause after every page until the ink is replenished. If Pause on Low Ink is disabled, the printer does not pause and the low ink warning does not appear. This could result in one or more colors running out in the middle of a print.
- ◆ **Ink Warning Level** — defines the **Low Ink Warning** level, as a percentage of ink remaining.

## Lighter Prints—Darker Prints

To adjust the ink saturation for all prints sent to this printer, move the slider control or enter a number within the valid range in the text entry box. You can use this control to reduce the amount of ink used, to reduce cost, or improve drying when printing in faster print modes.

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## Selecting Server Options

The following server options are explained in this section:

- ◆ **Configuring the Input Port** (page 6-8)
- ◆ **Attention Queue Jobs** (page 6-13)
- ◆ **Tiling** (page 6-14)

For instructions on other server functions, refer to the *System Control User Guide*.

## Configuring the Input Port

The settings in this section apply to the printer. You can also specify most of these options for individual print jobs from the Document Details dialog box (see the *System Control User Guide* for details).

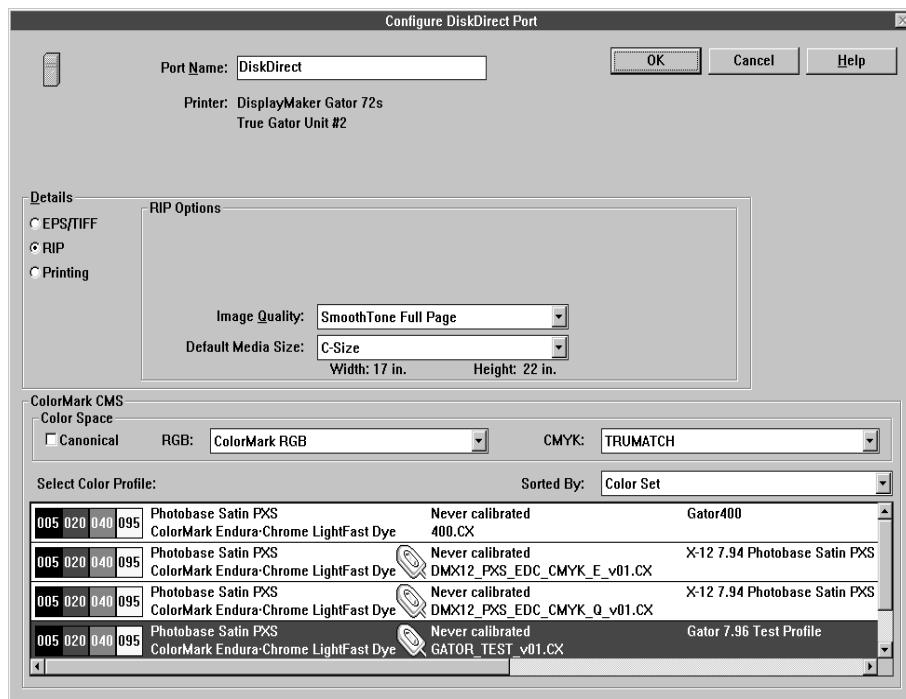


Fig. 6-4. Input Port Options

### Port Name

The name that appears under the port icon in System Control and in the Chooser or print queue of the client computer.

- ◆ **AppleTalk Network** - On an AppleTalk network, the port name appears in the Chooser preceded by the **print server's** name.

Port name changes take effect only when the port becomes idle. To avoid confusion over different names appearing in the Chooser, change this name only when all ports are idle.

- ◆ **Microsoft Windows Network** - On a Microsoft Windows Network, the WinLink port name appears as a network printer connected to the **server**.
- ◆ **Novell Network** - On a Novell NetWare network, the system defaults to the print queue selected through the Windows Control Panel.

To change the NetWare File Server and Print Server names, click **Settings** on the port configuration dialog box.

## EPS/TIFF Options

**Default Print Mode** specifies how files sent to the printer with the ColorSpan Image Utility or Downloader Utility are printed. For details, refer to the *System Control User Guide* and the *Printing Tools User Guide*.

- ◆ **Server-Side Support** - “wraps” the image file in PostScript code that enables the ColorSpan server to RIP the image, and to manipulate it using the manual pre-RIP cropping, scaling, and tiling features of the System Control software.
- ◆ **Client-Side Support** - downloads the image file as-is, which enables RIPing but *not* the manual pre-RIP cropping, scaling, and tiling features of the System Control software.

You can see how the image will look before printing by checking its **Preview** in the **Output** queue.

## RIP Options

**Image Quality** – Select the image quality based on how fast you want the job to RIP and print, the level of apparent resolution required, and the quality of gradients required. You can choose from:

- ◆ *SmoothTone Full Page* – highest quality, applies SmoothTone error diffusion to all elements on the page. Yields the best color matching.

- ◆ *Mural Better* — image quality is very close to SmoothTone Full Page, but RIP times are much faster. Switch to SmoothTone Full Page if text or line art quality is too “jaggy” at the intended viewing distance.
- ◆ *Mural Bigger* — Mural Bigger prints faster, which produces lower quality at close viewing range. The RIP time is less for this mode than for any other mode.

**Default Media Size** — Select a media size from the popup menu that the server can use if no media size is specified in the print job.

## Printing Options

**Copies** — Type in the number of copies you want to print. This number applies to each print job sent through this port.

**N-UP** — To conserve media for smaller-sized jobs, you can print the copies side-by-side. When you select the N-UP checkbox, specify the width of the gutter (space between copies). The prints will automatically be fitted across then down the media until the number of copies specified are printed.

**Step-and-Repeat** — Step-and-Repeat prints copies of an image across the width of a page, offsets the image horizontally, then prints another row of the image, and so on until the end of the page is reached. This is useful for applications such as stage backgrounds.

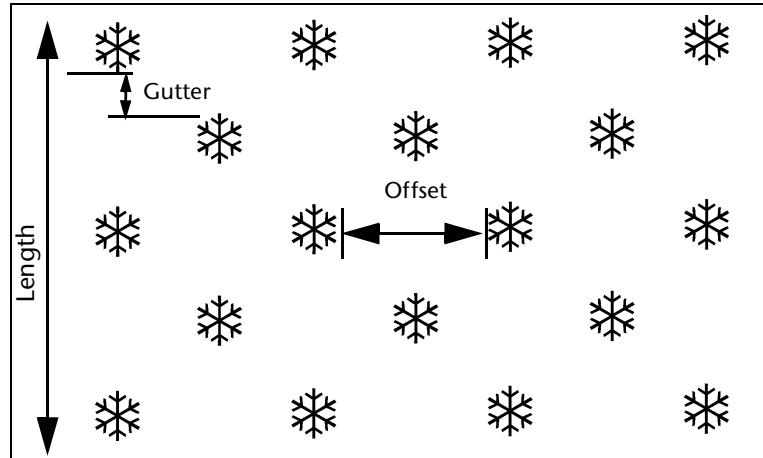


Fig. 6-5. Step-and-repeat dimensions

To specify step-and-repeat settings for an image:

1. **In the System Control interface, route a port to the Output Hold queue, or pause the Standard port.**
2. **Print an image to the port that is routed to the Output Hold queue or paused Standard port.**  
After the job has RIPed, it appears in the queue.
3. **Open the queue, select a document, then double-click the document listing to open the Document Details dialog box.**  
The Document Details dialog box appears.
4. **In the Details section, click the “Printing” radio button to display the Step-and-Repeat properties.**

The Step-and-Repeat properties appear similar to this example (if they do not appear, then Step-and-Repeat is not supported on the selected printer):

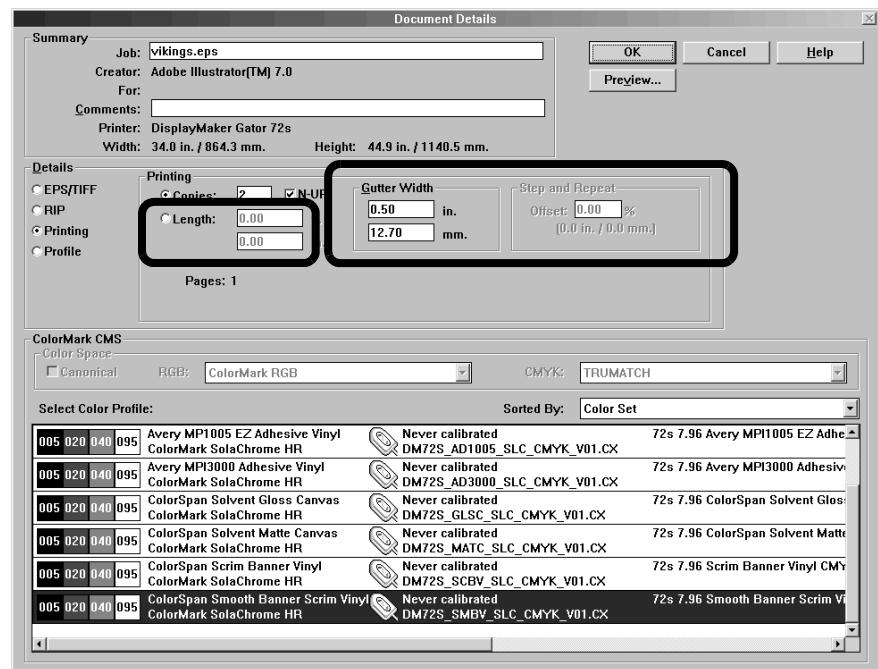


Fig. 6-6. Step-and-Repeat settings

- ◆ **Length** - when you click the Length radio button, the Step-and-Repeat properties become visible. In the length field, enter the length you want the step-and-repeat pattern to be printed.
- ◆ **Gutter Width** - enter the blank space you wish between each image row.
- ◆ **Step and Repeat Offset** - enter the offset amount, as a percentage of the image's width. The offset amount is the amount of space between copies of the image in a row.

**5. Click OK to save the settings.**

The job appears in the queue with a Step-and-Repeat icon, as shown below.



**6. To print the job, unpause the queue, or move the job to an active Output port.**

## Attention Queue Jobs

You can print a job that System Control sends to the Output Attention Queue with a Media Size Mismatch error by overriding the error. When you override the error, the excess image width is clipped (not printed) from the right edge of the image. This allows you to print a file with a custom page size slightly over the maximum print width, without revising and reprinting the application file or loading wider media in the printer.

For example, a print job may be set with a custom page width of 80 inches, with an image that is 76 inches wide. If 60-inch wide media is loaded, the print job would be sent to the Output Attention Queue with a disposition of "Media Size Mismatch."

You can avoid Media Size Mismatch errors by ensuring that the width of the media loaded is sufficient to print the job.

For further information about Attention Queues, refer to the *System Control User Guide*.

To override the Media Size Mismatch error and print a job:

1. **Open the Output Attention Queue and double-click the listing of the job you want to print.**
2. **Click the checkbox marked "Override Media Size Mismatch."**
3. **Close the Document Details dialog box.**  
This displays the Attention Queue listing again.
4. **Drag the job to an Output queue.**

This queues the job for printing. The job will be printed as wide as possible, with the excess image area clipped on the right side.

## Tiling

The ColorSpan print server provides various image manipulation options, including tiling, scaling, and nesting of images. Refer to the *System Control User Guide* for detailed instructions.

To tile an image across multiple sheets:

1. Click “EPS/TIFF,” then select the “Manual” print mode in either a Port Configuration dialog box or Document Details dialog box of a print job in an Input queue.
  - ◆ To apply the option to all EPS and bitmap jobs received by the server at a port, select the option in the Port Configuration dialog box.
  - ◆ To apply the option to an individual job, route the job to the Input Hold queue or paused Input queue, and select option in the job’s Document Details dialog box.

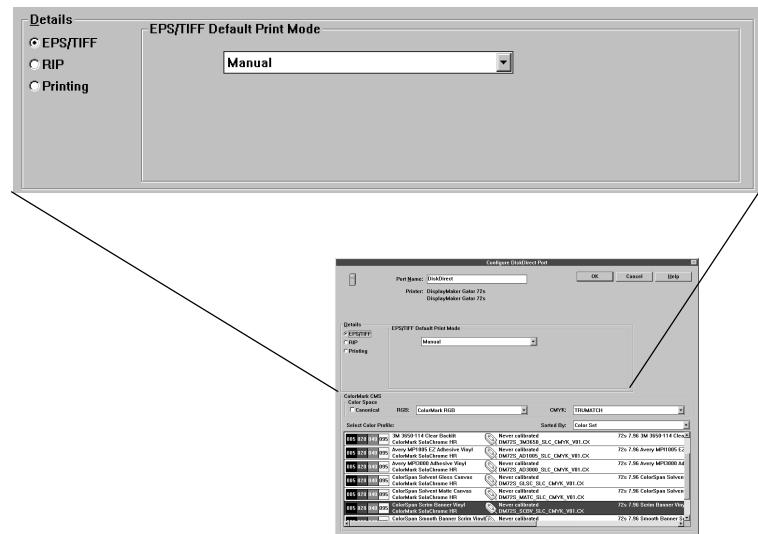


Fig. 6-7. Setting the Manual EPS/TIFF print mode

2. Send an EPS or bitmap file to the print server.

Download an EPS or supported bitmap file from a client Macintosh or Windows PC using the ColorSpan Downloader Utility, or use the DiskDirect port to enqueue a supported file from an external disk drive (or CD-ROM drive).

The file proceeds to the Input Attention Queue.

3. Open the Input Attention Queue.

4. Select the EPS or bitmap job in the Attention queue.



5. Click the EPS/TIFF Manual button.

This opens the EPS/TIFF Manual options dialog box and displays the Cropping tab.

If the EPS button is not visible, click the job information button to display the Document Details dialog box. Then select Manual from the list of EPS options.

6. Click the Tiling & Scaling tab to specify tiling and scaling settings.

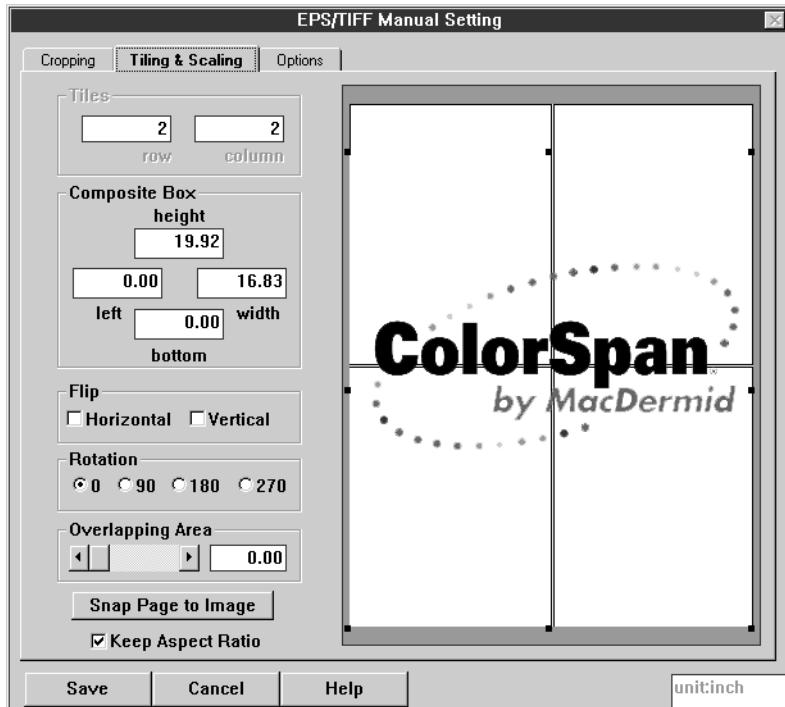


Fig. 6-8. Tiling & Scaling tab

- ◆ **Tiles** — The number of rows and columns is automatically updated when you resize (scale) the image.
- ◆ **Composite Box** (scaling) — to resize the image, use the mouse to drag the handles of the image. When you resize the image past the edge of the current paper size, the image is automatically positioned on a field of tiles. You can also reposition the image relative to the tiles by dragging it with the mouse. Alternatively, you can spec-

ify numeric left and bottom origins, and height and width.

- ◆ **Flip** — to flip (mirror) the image, check the Horizontal or Vertical checkbox. This is convenient when printing on reverse-print backlit media.
- ◆ **Rotation** — select the number of degrees to rotate: 0, 90, 180, or 270.
- ◆ **Overlapping Area** — specify the amount of overlap for each tile, numerically or with the slider control.
- ◆ **Keep Aspect Ratio** — enable (check) to resize without changing the aspect ratio, disable (uncheck) to resize height or width without regard to aspect ratio.
- ◆ **Snap Page to Image** — automatically sets the page size to the same size as the image, as defined in the Composite Box field and shown in the preview image.

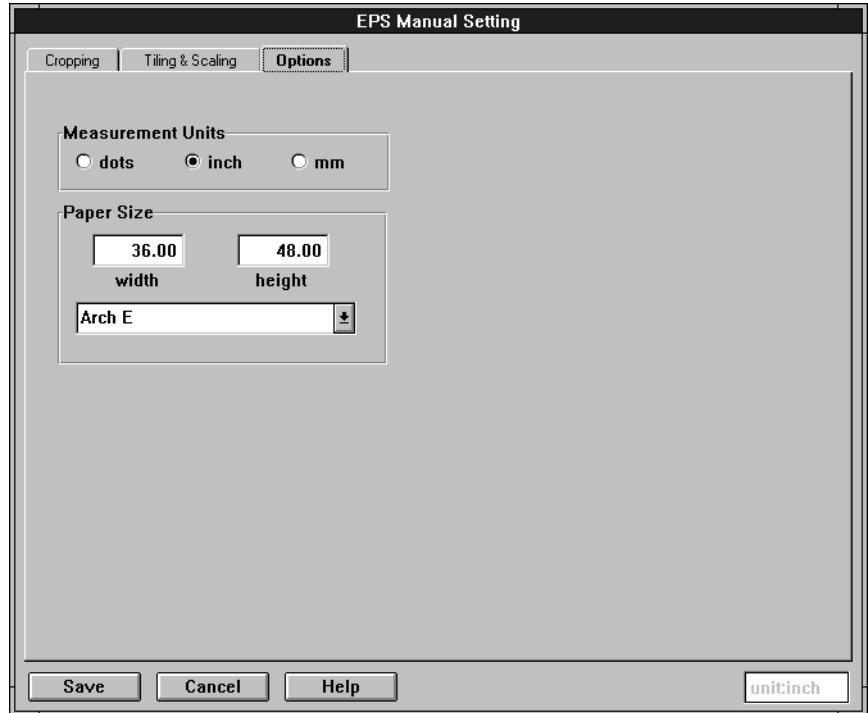


Fig. 6-9. Options tab

7. **Click the Options tab to specify options.**
  - ◆ Measurement Units - select dots (pixels), inches, or millimeters.
  - ◆ Paper Size - select a paper size for the print or, if tiled, size for each tile.
8. **To save your changes if you typed in numerical values in the Paper Size field, press the Enter key on the print server keyboard. Otherwise, click the Save button.**

The changes you make on the Options tab are applied immediately. The changes you make on the other tabs are applied only when you click the Save button (or press the Enter key). To discard your changes to the Cropping or Tiling & Scaling tab, click Cancel.

For detailed instructions, refer to the *System Control User Guide*.

---

## Color Management

Color management is the process of ensuring the accuracy of the colors in an image using a profile of the media and ink that will be used to print the image.

Two color management workflows are supported by the ColorSpan RIP:

- ◆ **ColorSpan** — uses a ColorSpan format color profile to correct the image on the RIP, and color calibration data to linearize the printed output.
- ◆ **ICC** — uses an ICC format color profile to correct the image on the client workstation, and color calibration data to linearize the printed output. In this case, no color correction is performed on the RIP.

For details on using the ColorMark+ software to create color profiles for the ColorSpan or ICC workflow, refer to the *ColorMark+ User Guide*, part number 0706133.

### ColorSpan Workflow

### ColorMark CMS

The Input Color Space option you select determines how image colors are converted from one device to another, which establishes the method of color correction that will be performed by the print server.

Matching the output color space, as defined in application programs such as Adobe Photoshop, with its corresponding conversion method will result in more accurate color reproduction and an expanded color gamut. (See “Selecting an Output Color Space” on page 7-4 for instructions.) If you receive files from customers, ask what color space they were created in so you can print them in the same space.

**RGB** - Used for print jobs created in the RGB color space; best for most images.

- ◆ Adobe RGB
- ◆ Apple RGB
- ◆ CIE RGB
- ◆ ColorMatch RGB
- ◆ sRGB
- ◆ ColorMark RGB
- ◆ ColorMark 2 RGB

**CMYK** - Used for print jobs created in the CMYK color space.

- ◆ **TRUMATCH** - matches TRUMATCH spot colors and full-color images.
- ◆ **SWOP (Coated) Emulation** - emulates the Standard for Web Offset Production color space used for color offset printing onto coated paper stock. Best for proofing applications.
- ◆ **SWOP (Coated) Emulation YA** - “yellow adjusted,” provides visually warmer yellow tones, compared to the “SWOP (Coated) Emulation” color space.
- ◆ **Eurostandard (Coated) Emulation** - emulates the Eurostandard color space used for color offset printing onto coated paper stock. Best for proofing applications.
- ◆ **Eurostandard (Coated) Emulation YA** - “yellow adjusted,” provides visually warmer yellow tones, compared to the “Eurostandard (Coated) Emulation” color space.

**CANONICAL** - When checked (enabled) this mode overrides the RGB and CYMK settings. Use this mode to output pure solid colors, such as for presentation graphics. This option uses no color correction, but instead uses a default RGB-to-CMYK conversion.

## Color Profile

The table lists the color profiles available for the printer. A color profile is a data file used to convert the colors in a file sent to the RIP into colors that can be printed on the printer. There is a specific profile for each ink set and media combination.

- ◆ **Select Color Profile** - for accurate color matching, select the profile that contains the color set, media, and ink you want to use for jobs sent to this port, or for a specific job. If a different media and ink combination is specified by the application program, the job is routed to the Output Attention queue with a disposition of Media Mismatch.
- ◆ **Sorted By** - sort the list of profiles by:
  - ◆ **Color Set** - a graphical representation of the color and ordinal number of each ink in the set.
  - ◆ **Media Name** - name of the media in the profile.
  - ◆ **Ink Name** - name of the ink in the profile.
  - ◆ **Last Calibrated** - when the profile was last color calibrated by the ColorMark Color Management System software.
  - ◆ **Profile File Name**

## ICC Workflow

Once sent to the ColorSpan RIP, the profile of an ICC print job cannot be changed, since color correction in this workflow is applied at the client workstation, not at the RIP.

MediaSaver is not available for ICC jobs.

To use an ICC workflow, follow these steps:

- 1. Create, then copy and install the ICC profile (corresponding to the ink set and media you are using) to your Macintosh OS or Microsoft Windows based workstation.**

You can use the ColorMark+ Advanced Color Management System Software to create ICC profiles. You can also use software from third-party sources such as Onyx Graphics, Monaco Systems, and GretagMacbeth. Install the profiles as explained in the user documentation that accompanies these products.

- 2. Set the color space in the printer driver (on the client workstation) to Printer's Default.**
- 3. In the Port Configuration dialog box on the ColorSpan RIP, set the Image Quality to ICC SmoothTone Full Page, ICC Mural Better, or ICC Mural Bigger. (See ① in Fig. 6-10 on page 6-21.)**
- 4. Select the ink set and media you are using. (See ② in Fig. 6-10 on page 6-21.)**

In the ICC workflow, this selection applies linearization data only. It does not also apply a color profile, as it would in the ColorSpan workflow.

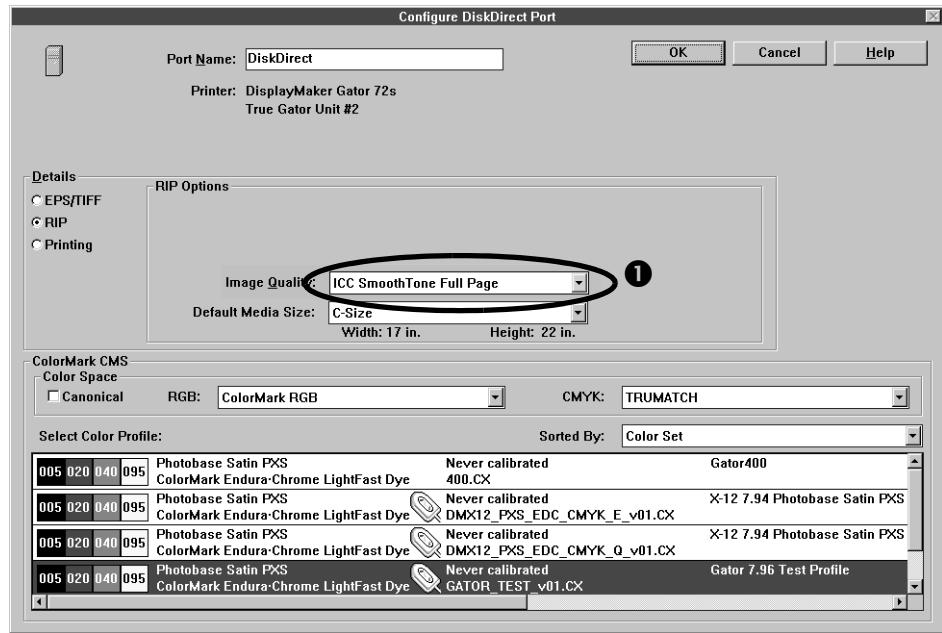


Fig. 6-10. Port configuration for ICC workflow

5. Print the document to the port on the ColorSpan RIP that you configured for the ICC workflow. In this composite workflow, do not send the job as separations.

## Color Calibration

Color control functions can be accessed by clicking and holding the mouse over the printer icon. This displays the icon menu shown below:



Fig. 6-11. Printer icon menu

- ◆ For instructions on ColorMark CMS and Manage Profiles, refer to the *System Control User Guide*.
- ◆ For instructions on Create, refer to the *ColorMark+ User Guide*.

Calibrating the ColorMark software (linearization) ensures color consistency between prints by compensating for variations in ink drop size that normally occur. It is not necessary to calibrate after printing any specific number of jobs. Calibrate the ColorMark CMS under these circumstances:

- ◆ When you first install the printer
- ◆ When you switch media or print modes, especially between Billboard and Production or High Quality modes
- ◆ When you notice a change in the color consistency of the printer output

The GretagMacbeth Spectrolino SpectroScan or ColorMark Calibrator (X-Rite DTP22) spectrophotometer can be used to calibrate the printer.

- 1. Make sure the printer is connected to the server, plugged in, turned on, and displays the “Ready” message on the control panel.**

Make sure that the ColorMark Calibrator or Spectrolino device is connected to the server and powered on.

- 2. Position the cursor on the printer icon.**
- 3. Press and hold either mouse button to display the printer menu.**
- 4. Select Control from the printer menu.**
- 5. Set the Margin to 10 inches, and Justify to Left.**

This will print the calibration pattern approximately 10 inches from the left edge of the media. This will preserve the integrity of the web enough to allow it to continue to used in the printer.

- 6. Click the Close button.**
- 7. Press and hold either mouse button to display the printer menu.**
- 8. Select Calibrate from the printer menu.**

The Color Profile selection dialog box appears.



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**Note** If the printer is currently printing or if the ColorMark CMS software is not installed, the Calibrate option is grayed out.

---

- 9. Select a profile to calibrate.**

- 10. Click the OK button.**

This causes the calibrator to be initialized.

A dialog box appears that gives you the option of printing the Calibration Page or taking calibration readings.

- 11. Click the button marked Print Calibration Page.**

The printer prints a series of color swatches.

- 12. Open the Control dialog box, and advance the media forward to the dryer and allow the pattern to dry.**
- 13. From the Control dialog box, reset the margin to its previous setting.**
- 14. Cut out the test pattern with a scissors or sharp knife.**

15. Open the Control dialog box, and advance the media forward until the cutout area is past the top roller.
16. Smooth out the web in the print zone.

A dialog box appears that gives you the option of printing the Calibration Page or taking calibration readings.
17. Click the button marked Take Calibration Readings.
  - ◆ If you are using the GretagMacbeth Spectrolino SpectroScan x/y table spectrophotometer, go to step 18.
  - ◆ If you are using the ColorMark Calibrator (X-Rite DTP22 spectrophotometer), go to step 22.

#### **Spectrolino SpectroScan**

18. Place the calibration pattern onto the SpectroScan table.
19. Following the prompts on the print server, home the sensor to reference points 1, 2, and 3.

For SpectroScan operating instructions, refer to the manufacturer's user manual.
20. Click the OK button on the print server.

The readings are taken. When reading is complete, the server asks whether you would like to save the readings for the ColorMark Calibration.
21. Accept (Yes) or cancel (No) the calibration data.
  - ◆ If you accept the data, color calibration is complete.
  - ◆ If you cancel the data, the calibration data is discarded.

#### **ColorMark Calibrator**

22. Place the Calibrator in its stand, press and hold the base until the reading is taken.

The server beeps when the reading is complete. Additionally, the Calibrator vibrates as it reads and stops vibrating when the reading is taken.

Take a white point reading before taking any color readings. You can either take the white point reading or cancel and restart the procedure.
23. Place a sheet of unprinted white media underneath the Calibration Page before you take any readings.
24. Position the Calibrator's eye on a clean white spot on the calibration page.

**25. Press and hold the Calibrator base until the white point reading is taken.**

After the white point reading is taken, the screen displays the ColorMark Calibrator Window. For your information, the Media Type, Print Mode, and Ink Type you selected when you printed the Calibration Page appear near the top of the dialog box.

- a. Position the Calibrator's eye over the center of the first colored square.

Be sure to place the eye of the calibrator on an area of the color swatch that has uniform pattern reproduction. Avoid placing the eye over any defects, blemishes, or ink inconsistencies on the color swatch.

- b. Press and hold the Calibrator base down until the print server beeps, indicating that the reading has been taken.

The box moves to the next swatch on the screen as a beep signals that you can take the next reading.

- c. Repeat these readings with the next swatch until you have measured all of the swatches.

To start over at any time during the calibration process, click Cancel in the dialog box. The previous profiling information is preserved and the calibration process is terminated.

If you take a white point reading after reading some or all color values, all color values are removed from the screen, and you must restart the reading of color values.

Be sure to take a reading for each color. If you make a mistake, click Cancel and start over.

- d. When the values of all swatches are displayed and correct, the Save switch is enabled.

When all of the swatches have been read, a dialog box appears that shows the calibration data for each swatch.

**26. Accept or cancel the calibration data.**

- ◆ If you accept the data, color calibration is complete.
- ◆ If you cancel the data, the calibration data is discarded.



# CHAPTER 7

## Printer Driver Setup

This chapter shows you how to use the ColorSpan printer drivers for Windows and Macintosh OS to select device options and an output color space from your application software.

If you have not configured your operating system environment to print to the printer, refer to the *ColorSpan Printing Tools User Guide* for instructions.

If you are using a third-party RIP, refer to the documentation that accompanies it for details about its printer driver.

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## Specifying Windows Device Options

To specify device options:

1. Click the Windows Start button.
2. Select Settings - Printers and Faxes.
3. In the Printer folder, highlight the DisplayMaker Gator icon, then display the printing options:
  - ◆ In Windows XP/2000, right-click the printer icon. From the icon menu, click the Properties option. In the Properties dialog box, click the Printing Preferences button. In the Printing Preferences dialog box, click the Advanced... button.
  - ◆ In Windows NT 4.0, right-click the printer icon. From the icon menu, click the Document Defaults option. The Document Defaults dialog box appears.
  - ◆ In Windows 95/98/ME, right-click the printer icon. From the icon menu, click the Properties option. The Properties dialog box appears.

In general, leave all settings at their default values. You can configure these settings from the application program's print setup function. Any settings so specified will override the default settings you specify from the Printers folder.

**Details** (Windows 95/98 only)

- ◆ **Spool Settings** — specify "Print directly to printer." Since print jobs can be up to 100 megabytes or more in size, you can save considerable time by *not* spooling them on your computer before sending them to the server.
- ◆ **CMYK Color Space** — specifies the color correction to be used for print jobs created in CMYK color space. Not used for ICC workflow.
  - TRUMATCH — accurately matches TRUMATCH spot colors and reproduces full-color images.
  - SWOP (Coated) — emulates the Standard for Web Offset Production color space used for color offset printing onto coated paper stock. Best for proofing applications.
  - Eurostandard (Coated) — emulates the Eurostandard color space used for color offset printing onto coated paper stock. Best for proofing applications.

- ◆ **Canonical Color** — determines how image colors are converted from one output space to another, which establishes the method of color correction that will be performed by the print server. This option is only available when ColorMark Color Management System Software is installed. Not used for ICC workflow.

No — provides the best possible color correction.

Yes — applies no color correction, but instead uses a default CMYK-to-RGB conversion. Use this mode to output pure solid colors, such as for presentation graphics.

## Selecting an Output Color Space

Your application software and the ColorMark print server software are allow you to select from a variety of device-specific RGB color conversion methods. Matching an RGB output color space, as defined in application programs such as Adobe Photoshop, with its corresponding conversion method will result in more accurate color reproduction and an expanded color gamut.

To select an output color space:

1. Select an output color space from the Port Configuration dialog box on the ColorSpan print server.
2. Select an output color space in the application program.
  - ◆ If you will be using an ICC workflow, always select "Printer's Default."
  - ◆ If you will be printing the document, select the color space in the application's Print dialog box:

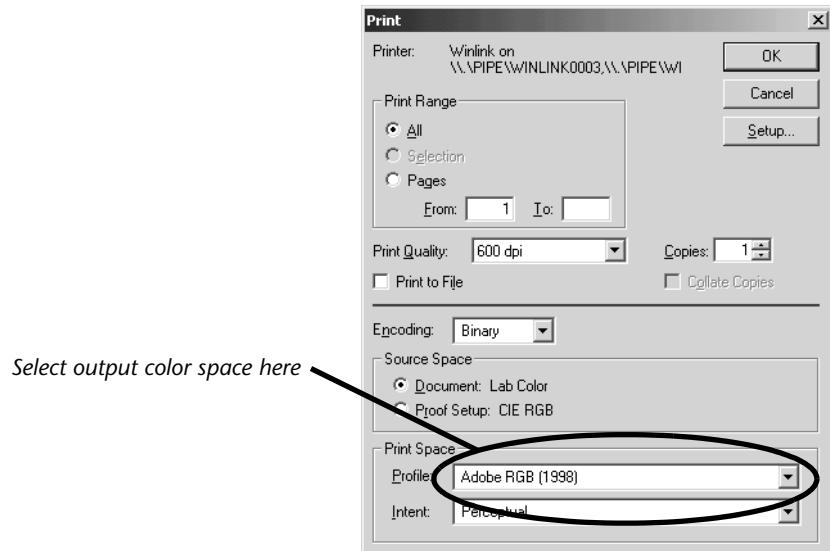


Fig. 7-8. Sample color space setting (Adobe Photoshop shown)

- ◆ If you will be downloading the document, select the working color space in the application's color configuration dialog box. Note that some file formats may not support the color space you selected in step 1; if so, select another file format or color space. After changing the working color space, you may need to adjust the colors in the document to compensate for any resulting color shift.

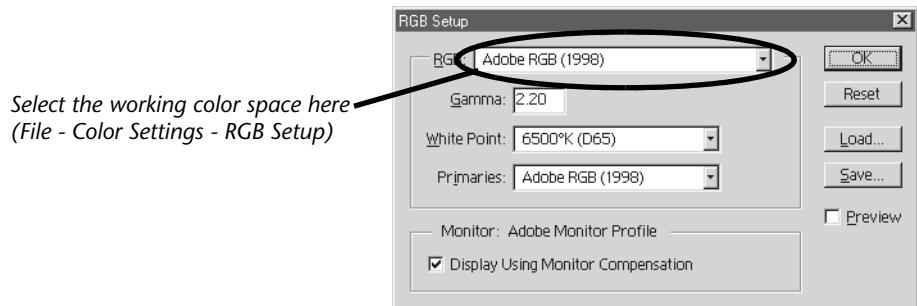


Fig. 7-9. Sample color space setting (Adobe Photoshop shown)

These examples are from Adobe Photoshop. The location of these settings varies by application and version. Consult your application's user manual or online help for details.

### 3. Print or download the document.

- ◆ To print the document, click OK or Print in the application's Print dialog box.
- ◆ To download the document, first save it in a file format that is supported by the ColorSpan Downloader Utility and/or your print server. Then download the file.

## Specifying Macintosh Device Options

Before you print, install the Printing Tools software and fonts as described in the *ColorSpan Printing Tools User Guide*. You should install the LaserWriter driver that is appropriate for your operating system version. This driver is available on your operating system disks or from the Apple Computer World Wide Web site at <http://www.apple.com/>.

You can set device options from your application, or simply leave all settings to "Printer's Default." In this case, the settings that are in effect on the Port configuration in System Control are used. See the print server's online Help, or the *System Control User Guide*, for information about configuring ports.

### Selecting Printer Features

1. **Select Print from your application's File menu.**  
The **Print** dialog box appears.
2. **Click Printer Features (OS X) or Printer Specific Options (Classic).**

The Printer Features (OS X) or Printer Specific Options (Classic) dialog box appears. The two pages of the Printer Features dialog box can be viewed by selecting **Set 1** and **Set 2** from the **Feature Sets** drop-down box.

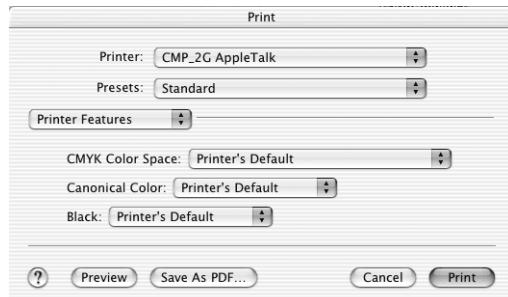


Fig. 7-1. Printer Features

3. **Select Printer Features.**

If you select **Printer's Default**, the settings that are in effect on the Port configuration in System Control are used. If you are using an ICC workflow, always select Printer's Default.

- ◆ **CMYK Color Space** – specifies the color correction to be used for print jobs created in CMYK color space. Not used for ICC workflow.

TRUMATCH – accurately matches TRUMATCH spot colors and reproduces full-color images.

SWOP (Coated) – emulates the Standard for Web Offset Production color space used for color offset printing onto coated paper stock. Best for proofing applications.

Eurostandard (Coated) – emulates the Eurostandard color space used for color offset printing onto coated paper stock. Best for proofing applications.

- ◆ **Canonical Color** — Determines how image colors are converted from one output space to another, which establishes the method of color correction that will be performed by the print server. This option is only available when ColorMark Color Management System software is installed. Not used for ICC workflow.

Off (TRUMATCH) – provides the best possible color correction. With TRUMATCH selected, you can be assured of accurate matching of TRUMATCH spot colors and true reproduction of full-color images.

On (Canonical) – use this mode to output pure solid colors, such as for presentation overheads. This option uses no color correction, but instead uses a default CMYK-to-RGB conversion.

#### 4. Click Print.

The document is sent to the printer.

## Selecting an Output Color Space

Your application software and the ColorMark print server software are allow you to select from a variety of device-specific RGB color conversion methods. Matching an RGB output color space, as defined in application programs such as Adobe Photoshop, with its corresponding conversion method will result in more accurate color reproduction and an expanded color gamut.

To select an output color space:

1. **Select an output color space from the Port Configuration dialog box on the ColorSpan print server.**

See “ColorMark CMS” on page 6-6 for instructions.

2. **Select an output color space in the application program.**

- ◆ **If you will be using an ICC workflow, always select “Printer’s Default.”**
- ◆ **If you will be printing the document, select the color space in the application’s Print dialog box:**

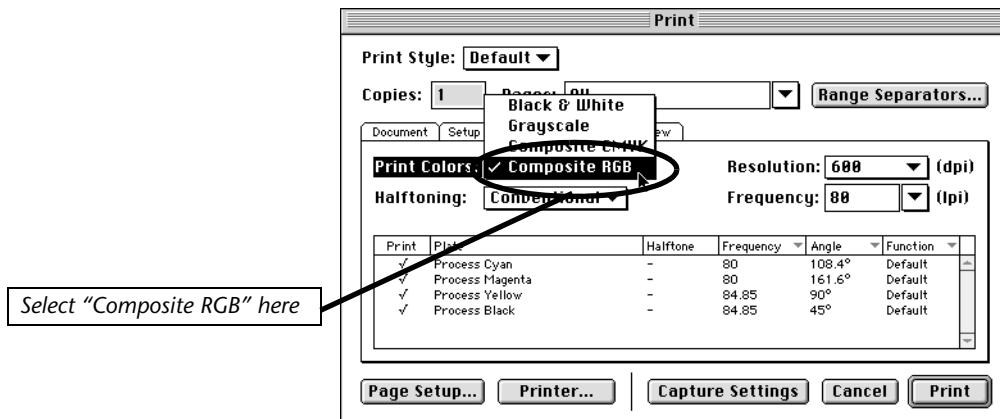


Fig. 7-2. Sample color space setting (QuarkXPress shown)

- ◆ If you will be downloading the document, select the working color space in the application's color configuration dialog box. Note that some file formats may not support the color space you selected in step 1; if so, select another file format or color space. After changing the working color space, you may need to adjust the colors in the document to compensate for any resulting color shift.

Select the working color space here  
(Edit - Preferences - Color Management)

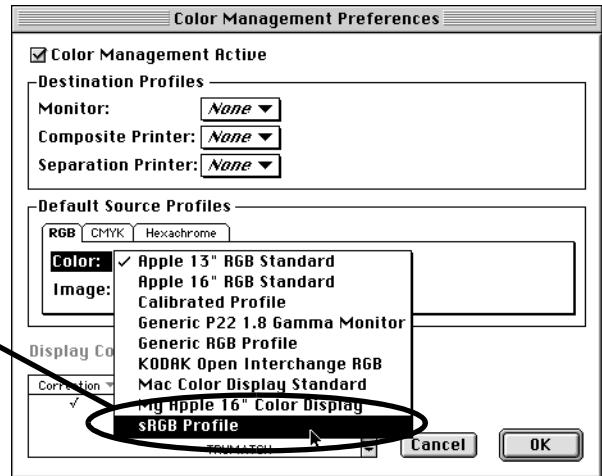


Fig. 7-3. Sample color space setting (QuarkXPress shown)

These examples are from QuarkXPress. The location of these settings varies by application and version. Consult your application's user manual or online help for details.

### 3. Print or download the document.

- ◆ To print the document, click OK or Print in the application's Print dialog box.
- ◆ To download the document, first save it in a file format that is supported by the ColorSpan Downloader Utility and/or your print server. Then download the file.



## APPENDIX A

### Technical Specifications

This chapter lists the printer's specifications and information about ordering supplies.

	DisplayMaker 72S	DisplayMaker 72SR	
<b>Dimensions (Assembled)</b>	Height: 52.5 inches (133.4 cm) Depth: 33.0 inches (83.8 cm) Width: 135.7 inches (344.7 cm)	<i>With Tables</i> Height: 52.5 inches (133.4 cm) Depth: 87.7 inches (222.8 cm) Width: 135.7 inches (344.7 cm)	<i>With Tables</i> Height: 52.5 inches (133.4 cm) Depth: 87.7 inches (222.8 cm) Width: 159 inches (403.9 cm)
<b>Weight (Assembled)</b>	380 pounds (172 kg)	<i>With Tables</i> 505 pounds (229 kg)	<i>With Tables</i> 555 pounds (252 kg)
<b>Supported Media Widths</b>	24-73 inches (61-185 cm)	24-73 inches (61-185 cm)	
<b>Maximum Media Thickness</b>	3/8 inch (5 mm)	3/8 inch (5 mm)	
<b>Maximum Rigid Media Length Supported by Tables</b>		60 inches (152 cm)	
<b>Maximum Print Width</b>	72.5 inches (184 cm)	72.5 inches (184 cm)	
<b>Printing Resolutions</b>	600 x 600 dpi	600 x 600 dpi	
<b>Maximum Print Speeds</b>	<b>Bidirectional</b> Billboard Mode: Production Mode: High Quality Mode:	400 ft <sup>2</sup> (37.2 m <sup>2</sup> )/hr 200 ft <sup>2</sup> (18.6 m <sup>2</sup> )/hr 100 ft <sup>2</sup> (9.3 m <sup>2</sup> )/hr	
	<b>Unidirectional (rigid medias only)</b> Approximately 1/2 the speed of the corresponding bidirectional modes		

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**Electrical Power**

**Power used:** 200-240VAC, 50/60 Hz, 14.8 Amps

**Required electrical circuit:**

220 VAC, 20 Amps, with NEMA L6-20R locking wall receptacle (North America and Japan), *OR*  
220 VAC, 16 Amps, single phase, with IEC 60309 wall receptacle (Europe)



**NEMA L6-20R**  
locking wall receptacle  
(North America/Japan)

**IEC 60309**  
wall receptacle  
(Europe)

**North America:** If your building receives power from a standard three-phase supply, note that the printer will use only two of the three phases. This means that your building's three-phase power transformer may have an unbalanced load. Check with your electrician to verify that your building has sufficient capacity for this unbalanced load.

**Optional auxiliary power for vacuum system:** Supplied 24 volt DC power supply with universal adapters, connected from the 24 VDC jack on the vacuum/pressure assembly to either of two options:

- 1. UPS** – customer-supplied uninterruptible power supply, output 100-240 VAC, 50/60 Hz, minimum of 15 watts of power, provides battery backup to the vacuum system in the event of a power failure.
- 2. Wall outlet** – 100-240 VAC, 50/60 Hz, provides temporary power to the vacuum system when it is necessary to power down the printer for service.



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<b>Power cord</b>	Required power cord (supplied with printer): North American (UL/CSA approved), length 8.2 feet (2.5 m), <b>OR</b> European (Harmonized), length 8.2 feet (2.5 m)
<b>Ventilation</b>	<p>The printer uses solvent-based inks. The printer does not include an integrated exhaust hood or shielding for collecting the volatile organic compound (VOC) emissions from the inks and cleaning solvent. The owner is responsible for ventilation and VOC recovery as required by local regulations. Connection kits are available from MacDermid ColorSpan to vent VOC emissions to the customer's exhaust system or VOC recovery equipment. Consult your MacDermid ColorSpan reseller for details.</p> <p>The air surrounding the printer should be changed every 1-3 minutes or as desired to reduce or remove the solvent odor. The greater the amount of printing, and the larger the room in which the printer is located, the larger the fan required to change the air at a given rate. The space volume can be reduced with an enclosure around the printer or by moving the printer to a smaller room. Examples:</p> <p>Cubic feet per minute (CFM) (typical) to change the air in 3 minutes/1 minute:            Enclosure (4x10x6 feet): 80/240 CFM            Small Room (10x12x8 feet): 320/960 CFM            Medium Room (10x20x8 feet): 533/1600 CFM</p> <p>Select a fan with a CFM rating at or greater than the calculated CFM. The actual CFM required will vary with local building and airflow conditions.</p>
<b>Operating Conditions</b>	68–85° F (20–30° C) 20–80%, non-condensing
<b>Approvals</b>	Safety: UL, c-UL, CE Emissions: FCC-A, CE, VCCI-1 Immunity: CE

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## Performance

<b>Printing Technology</b>	16 piezo-electric inkjet printheads utilizing Micro-Quad™ Jet Technology. Drop size approximately 30 picoliters.
<b>Ink and Cleaning Solution</b>	<b>SolaChrome™-HR 4-color (CMYK) solvent pigmented inks.</b> 3.5-liter reservoirs with level indicators. <b>SolaChrome™-HR head cleaning solvent solution.</b> 3.5-liter reservoir with a level indicator with full sensors. Two 3.5-liter excess ink/solvent containers. LED indicates ready-for-refill condition. Each reservoir has its own filter (20 liter life) and pump.
<b>Inkjet Maintenance</b>	On-demand head cleaning. Automatic and on-demand jet recovery. On-demand solvent cleaner purge and ink refill. Manually-actuated capping station, available off-printer cleaning station.
<b>Vacuum/Pressure System</b>	Maintains negative relative pressure at the print-heads and provides air pressure for purging. Nominal relative vacuum: 4.80 inches H <sub>2</sub> O Since relative pressure is maintained, the printer can be operated at various altitudes above or below sea level without adjustments to the system.
<b>Media Handler</b>	Supply and takeup for roll-to-roll handling; use of takeup is optional. Supply accepts 3-inch or 2-inch cores, takeup accepts 3-inch cores only. The media supply roll can be loaded and unspooled in either orientation for printing on either side.
	Optional rigid cut-sheet handling hardware and software can accommodate media up to 3/16 inch (4.76 mm) thick.
<b>Drying System</b>	Contact preheater, platen heater, and postheater with user-selectable settings (not used for rigid cut sheets).
<b>Software Features</b>	Touch screen LCD with graphical interface. Automatic calibration and detection/substitution of missing jets. Media Wizard stores operational parameter sets by media type for subsequent recall.

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## Supplies and Accessories

Consult MacDermid ColorSpan or your MacDermid ColorSpan representative for an updated listing of supported ink and media.

Use only genuine ColorSpan SolaChrome inks and cleaning solvent in the printer. Use of any other inks or cleaning fluids could damage the printer and will void the warranty.

Supplies and accessories are available from MacDermid ColorSpan by calling:

### MacDermid ColorSpan Supplies Sales

- ◆ North America: (800) 723-3002 or (952) 943-3636
- ◆ Europe: +31 23.5622000
- ◆ Asia: (952) 943-3300
- ◆ Latin America: (800) 664-7242 or (952) 943-3600

## APPENDIX B

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### Troubleshooting

This appendix explains how to prevent and diagnose printing problems and provides information about getting help from ColorSpan.

For other software-specific troubleshooting procedures, refer to your application software documentation or the other ColorSpan documentation listed on page vi of this manual.

If your printer is connected to a non-ColorSpan RIP or print server, refer to the accompanying third-party documentation.

- ◆ Troubleshooting Checklist (page B-2)
- ◆ Warranty Claims (page B-5)
- ◆ Diagnostics (page B-7)
- ◆ MacDermid ColorSpan Technical Services (page B-14)

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## Troubleshooting Checklist

Before you troubleshoot your printer, make sure that it is properly installed as described in Chapter 1, Getting Started.

Follow the steps in this checklist to isolate and resolve printing problems.

1. Does the printer's power come ON?

**YES:** Go to question 2.

**NO:** The following could be the problem:

- ◆ The power cable may not be plugged into an electrical outlet.
- ◆ If the printer is plugged into a surge protector, the surge protector may not be connected to power, or it may be switched off.

2. Did the start-up sequence of the control panel end by displaying a Ready (status) screen similar to the one shown in Fig. 2-1 on page 2-2?

**YES:** Go to question 3.

**NO:** The following could be the problem:

- ◆ There may be a hardware problem with the printer's internal components. Follow the diagnostic routine on the control panel to determine the problem. Call MacDermid ColorSpan Technical Services as directed by the control panel.

3. Can you send a file from the print server to the printer?

**YES:** Go to question 4.

**NO:** The following could be the problem:

- ◆ The cable may not be securely connected between the print server and the printer. Refer to the server's documentation for more information.
- ◆ The cable may be connected to the wrong port on the print server. Refer to the server's documentation for more information.

4. Can you send (print or download) a document from a client computer to the server?

**YES:** Go to question 5.

**NO:** The following could be the problem:

- ◆ The connection from the client to the local area network may not be configured correctly. See your system administrator for assistance.

- ◆ The cable between your computer or network and the print server may not be securely connected at both ends. Refer to the print server manual for more information.
- ◆ Your computer may not be working properly. Run an application that you know works correctly and print to be sure.
- ◆ The computer's port may not be working properly. Print to another output device that you know works correctly (and is not connected to the print server) to check this.
- ◆ There may be another error condition reported by the print server.

5. Is the print quality good?

**YES:** Then the problem is not covered in this checklist. Contact MacDermid ColorSpan Technical Services.

**NO:** The following could be the problem:

- ◆ **Banding or general poor image quality** — the print-heads may need to be calibrated (see Chapter 4, Calibrating the Printer). One or more ink jets may be clogged or not firing (see "Loading Roll-Fed Media" on page 3-14). The media advance may need to be recalibrated (see "Media Feed" on page 4-9). Verify that the printhead carriage is at the proper height (see "Set the Printhead and Camera Height" on page 5-11). Verify that the service station is calibrated (see page 5-16).
- ◆ **Inaccurate color or under- or over-saturated output** — the wrong color profile may be selected at the print server or RIP. Refer to the documentation that accompanies the print server or RIP.
- ◆ **Inaccurate color or lack of detail** — one or more ink jets may be clogged or not firing (see "Loading Roll-Fed Media" on page 3-14).
- ◆ **Media buckling or media feed problems** — the wrong media could be selected in the Media Wizard (see "Media Wizard" on page 3-32). The printer may not have been installed squarely or securely on the stand (see "Unpacking and Assembly" on page 1-7). The media may not have been loaded squarely (see "Loading Roll-Fed Media" on page 3-14).

- ◆ **Head strike** — if the printhead is striking the media, check how the media is tracking from the supply spool to the takeup spool. The sides of the media should be parallel to the sides of the printer, with no wrinkling or buckling. If necessary, reload the media. See “Loading Roll-Fed Media” on page 3-14 for instructions. Also check the Media Wizard to see whether the correct media is selected (see “Media Wizard” on page 3-32). Head strikes may indicate that the printhead height is too low; see “Set the Printhead and Camera Height” on page 5-11 for instructions. If head strikes become a recurring problem, contact MacDermid ColorSpan Technical Services for an edge retainer that can be attached to the printer.

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## Warranty Claims

The printer is covered by a manufacturer's limited warranty (part number 0700025), which includes the printheads. The piezo printheads are designed to remain in service for the life of the printer.

All printers that use solvent-based inks are susceptible to print-head clogging. This is caused by the solvent evaporating and leaving behind the pigments. The printer incorporates many automatic and manual features for preventing clogs from occurring, and for recovering ink jets that do become clogged (see "Cleaning Clogged Ink Jets" on page 5-8). The warranty terms require that the maintenance procedures contained in this *User Manual* are followed prior to classifying a printhead anomaly as a "printhead failure."

A printhead failure is defined as any printhead that develops one or more individual jets that do not fire *and* that cannot be recovered or replaced ("mapped out") by the DisplayMaker 72s AutoJet or Manual Jet Mapping software when printing in Production Mode. If the jet(s) can be mapped out by the software in Production Mode, the printhead is deemed to be working satisfactorily and is not considered to have a failure.

In the event of a printhead failure as defined above, the cause and/or circumstances that lead to the failure must be identified. The following is a list of causes and/or circumstances that may lead to printhead failure. This list is not considered comprehensive, and any causes and/or circumstances that are not identified in this list will be evaluated on a case-by-case basis.

All printheads submitted for warranty claims will be subjected to failure analysis to confirm the cause of failure. The final determination of warranty applicability will be provided by this analysis.

For more information about warranty claims, contact ColorSpan Technical Services (see page ii for contact information).

**Causes that are covered by the manufacturer's warranty:**

- ◆ **Manufacturing defect** — when a flaw in materials or workmanship causes a printhead to fail, the failure will be covered by the manufacturer's warranty.

**Causes and/or circumstances that are not covered by the manufacturer's warranty:**

- ◆ Third party hardware or software
- ◆ Damage caused by accident, abuse, misuse (including damage resulting from head strikes or use of non-approved supplies), misapplication, relocation of product without approved procedures, failure to perform user maintenance as defined in the *User Manual* or contamination of the ink supply due to improper handling of the ink or ink system
- ◆ Printheads which have not been properly maintained as defined in the *User Manual*, and printheads with jet-outs that AutoJet is able to substitute in Production print mode
- ◆ Service (including upgrades and expansions) performed by anyone who is not a ColorSpan Authorized Service Provider
- ◆ Modification of the product without the written permission of ColorSpan
- ◆ Product on which the ColorSpan serial number has been removed or defaced or for which you cannot provide proof of purchase and payment
- ◆ Software (whether embedded in ROMs or other hardware or contained on diskettes or other media), including related manuals and documentation, its quality, performance, merchantability or fitness for any particular purpose

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## Diagnostics

The printer includes a series of self-diagnostic tests designed to help MacDermid ColorSpan Technical Services solve printer hardware problems. If one of the tests encounters an error, an error message appears, which includes:

- ◆ Error code — always write down this code for future reference by MacDermid ColorSpan Technical Services.
- ◆ Brief description of the error
- ◆ A series of buttons that allow you to respond to the error. In some cases, you can ignore the error or enter a further diagnostic routine. In other cases, you must restart the printer.

During the course of operating the printer, another class of error messages may appear on the control panel. The ATTN (Attention) key blinks on the Ready or Front Page screen when the printer detects an error condition, or potential error condition. When you press this button, the panel displays one or more messages of the following types:

- ◆ **Warnings** — the printer has detected a condition that, if left unaddressed, could result in substandard prints or a condition that will require an action before printing can continue. Any action on your part is optional.
- ◆ **Actions** — the printer has detected an error condition that stopped printing or will prevent printing from starting. You must correct the error before the printer will be ready to print.

The following table describes the Actions and Warnings in detail. The cross-referenced page numbers refer to this manual.

Table B-1. Actions and Warnings

Code, Message	Cause	What to Do
<b>(CS) Capping Station</b>		
A-CS-1- Capping Station	Capping station is raised, and the carriage is not at the capping station.	Lower the capping station to allow the printheads to be capped, and to prevent the carriage from crashing into it.
A-CS-2 - Capping Station	Printheads are capped.	Uncap the printheads.
W-CS-1 - Capping Switch Disabled	The Capping Station Sensor has been disabled.	Enable the Capping Station Sensor in the Printer Settings menu.
<b>(EI) Excess Ink Sensor</b>		
W-EI-1- Excess Ink Sensor Disabled	The Excess Ink Sensor has been disabled.	Enable the Excess Ink Sensor in the Printer Settings menu.
W-EI-2 - Excess Ink Sensor Disconnected	The Excess Ink Sensor is disconnected.	Ensure that the Excess Ink Bucket is in place and the full sensor is properly connected.
<b>(HT) Heater</b>		
W-HT-[1 2 3 4 5 6 7 8 9 10 11] - Heater Not Warming	A heater or thermistor may be not functioning on the middle platen heater (1-3), middle platen zone (4), right platen heater (5), right platen zone (6), left platen heater (7), left platen zone (8), preheat heater (9), postheater #1 (10), or postheater #2 (11).	Call your service provider to check wiring, heater, thermistors.
W-HT-[21 22 23 24 25 26 27 28 29 30 31] - Heater Too Hot	A heater has been turned off because its temperature has exceeded its operational specification: middle platen heater (21-23), middle platen zone (24), right platen heater (25), right platen zone (26), left platen heater (27), left platen zone (28), preheat heater (29), postheater #1 (30), or postheater #2 (31).	Wait for the heater to cool. If the temperature does not decrease, unplug the printer, then restart it and lower its temperature setting (page 3-35). Call your service provider to check wiring, heater, thermistors.
W-HT-[40 41 42 43] - Heater Bad Reading	Bad thermister reading detected on the middle platen heater (40-42) or middle platen zone (43).	The thermister is bad, or the heater board or I/O board is malfunctioning, or there is a cable problem.
W-HT-[44 45] - Heater Bad Reading	Bad thermister reading detected on the right platen heater (44) or zone (45).	The thermister is bad, or the heater board or I/O board is malfunctioning, or there is a cable problem.
W-HT-[46 47] - Heater Bad Reading	Bad thermister reading detected on the left platen heater (46) or zone (47).	The thermister is bad, or the heater board or I/O board is malfunctioning, or there is a cable problem.

Table B-1. Actions and Warnings

Code, Message	Cause	What to Do
W-HT-[48] - Heater Bad Reading	Bad thermister reading detected on the preheat heater.	The thermister is bad, or the heater board or I/O board is malfunctioning, or there is a cable problem.
W-HT-[49 50] - Heater Bad Reading	Bad thermister reading detected on the postheat #1 heater (49) or postheat #2 heater (50).	The thermister is bad, or the heater board or I/O board is malfunctioning, or there is a cable problem.
W-HT-100 - Heater Warming	The heaters are warming.	Wait for the heaters to reach their operational temperatures.
W-HT-101 - Heater Cooling	The heaters are cooling.	Wait for the heaters to reach their operational temperatures.
W-HT-[102 103] - Heaters Disabled	The printer is unable to control heater temperatures.	Allow heaters to cool and restart the printer. <b>If it will not cool, unplug the printer.</b> If problem persists, contact your Authorized Service Provider or Technical Services.
<b>(IS) Ink Sensing</b>		
A-IS-[1 2 3 4] - [color] Out of Ink	The ink color reservoir indicated is out of ink.	Refill the reservoir indicated with a full bottle of ink.
A-IS-[25 26 27 28] - [color] Missing Ink Profiler	The ink color indicated is missing its profiler.	Install the profiler indicated.
A-IS-[31 32 33 34] - Incorrect [color] Profiler	The profiler in the [color] slot is the wrong color or the wrong ink type.	Replace the profiler with appropriate [color] profiler.
A-IS-38 - Profiler Setup Error	Ink profilers are installed in the wrong docking station positions.	Change profilers to match ink order or insert correct profiler for ink type.
A-IS-[43 44 45 46 47] - [color] Invalid Profiler	The profiler indicated is invalid.	Replace the profiler indicated with a valid profiler.
A-IS-[51 52 53 54 55] - [color] Reservoir Not Emptying	The profiler was replaced before the ink level reached its refill point.	Do not replace the profiler until its LED turns on, which indicates that the ink level is low enough to accept a refill bottle of ink.
A-IS-[61 62 63 64] - [color] Air Sensor Failed	The air sensor on the printhead indicated may be not functioning.	Call your service provider to reposition or replace the air sensor.
A-IS-[65 66 67 68] - [color] Ink Sensor Failed	The ink sensor on the printhead indicated may be not functioning.	Call your service provider to reposition or replace the ink sensor.
A-IS-[71 72 73 74] - [color] Printheads Out of Ink	The printhead indicated is not receiving ink.	Check the ink reservoir for a low ink level, check attention items for a failed ink thermister, make sure that the ink filter is not full, and check the tubing and pump functionality.
A-IS-75 - Ink System Disabled	An error in ink system at startup was detected.	Fix the error and restart printer.

Table B-1. Actions and Warnings

Code, Message	Cause	What to Do
A-IS-[76 77 78 79]- Ink System Disabled	Ambient temp is out of range for operation for K (76), C (77), M (78), or Y (79).	Raise or lower the ambient temperature until it is within operating range (see "Specifications" on page A-2).
A-IS-[80 81 82 83]- [color] Heads Not Loaded With Ink	Printheads for one or more colors do not have ink loaded.	Fill the affected printheads with ink. See "Set the Printhead and Camera Height" on page 5-11.
A-IS-[84 85 86 87]- [color] Ink Sensor Disconnected	The ink sensor for one or more colors is disconnected.	Reconnect ink sensor.
A-IS-[88 89 8A 8B] - [color] Air Sensor Disconnected	The air sensor for one or more colors is disconnected.	Reconnect air sensor.
A-IS-[90 91 92 93 94] - [color] Pump Disconnected	The pump for one or more colors is disconnected.	Reconnect pump and restart printer.
A-IS-[95 96 97 98 99] - [color] Float Disconnected	The float for one or more colors is disconnected.	Reconnect float and restart printer.
A-IS-100 - Excess Ink Bucket Full	The excess ink and solvent reservoir below the supply reservoirs is full.	Empty and dispose of the excess ink and solvent according to local regulations. Check the left leg bucket and empty if necessary.
A-IS-[101 102 103 105 107 108 109 110A 110B] - Ink Counting Not Working	The ink counting mechanism has failed.	Replace ink counting mechanism.
A-IS-104 - Ink Counting Not Working	The ink counting mechanism has failed.	See Service menu to reset this action.
A-IS-106 - Ink Counting Not Working	The ink counting mechanism has failed.	Check docking station cables.
A-IS-[110 110C 111 112]- Ink Counting Not Working	The ink counting mechanism has failed.	Restart the printer. If the problem persists, contact your Authorized Service Provider or Technical Services.
W-IS-[1 2 3 4] - [color] Low Ink	Ink reservoir indicated has about 250 ml of ink remaining.	Refill the ink reservoir soon.
W-IS-5 - Cleaning solvent low	Cleaning solvent reservoir has about 250 ml of ink remaining.	Refill the reservoir soon.
W-IS-6 Cleaning Solvent Missing Profiler	Cleaning Solvent profiler is not detected.	Ensure that the cleaning fluid profiler is installed.
W-IS-7 Out Of Cleaning Solvent Cleaning Solvent reservoir is empty.	Refill cleaning fluid reservoir.	Purging will be disabled if not refilled.
W-IS-8 Replace Ink Filters	The ink reservoir filters need replacing.	Replace the ink reservoir filters and the cleaning solvent filter.
W-IS-9 Incorrect Cleaning Solvent Profiler	The profiler in the Cleaning Solvent slot is not a cleaning solvent profiler or is the wrong type.	Replace the profiler with appropriate Cleaning Solvent profiler.
W-IS-[21 22 23 24 25] - [color] Needs Profiler and Ink	The profiler and reservoir indicated are empty.	Refill the reservoir and replace the profiler.

Table B-1. Actions and Warnings

Code, Message	Cause	What to Do
W-IS-[31 32 33 34 35] - [color] Needs Profiler	The profiler indicated is empty.	Replace the profiler.
W-IS-[41 42 43 44 45] - Refill [color] Reservoir	The reservoir indicated is empty.	Refill the reservoir.
W-IS-[51 52 53 54 55] - Full Profiler Should be Removed	A full profiler was installed but the ink level is not ready-for-refill.	Remove the full profiler and replace the previously used profiler.
W-IS-A - Invalid Cleaning Solvent Profiler	Cleaning Solvent profiler is not valid.	Replace cleaning solvent profiler.
<b>(LS) Image Sensor</b>		
W-LS-[1 2] Image Sensor Is Not Operating	The image sensor shutter cable is disconnected.	Connect the image sensor shutter cable and restart the printer.
<b>(MD) Media Drive</b>		
A-MD-1 - Media Advance Stalled	The media drive motor has stalled.	Check supply spool for binding, and motor for failure.
<b>(MS) Media Sensing</b>		
A-MS-3 - Media Too Far Left/Right	Media is loaded too far to the left or right.	Reload the media; align right edge to reference mark.
A-MS-4 - Media Out	There is no media loaded.	Load media.
A-MS-5 - Media Too Narrow	Media loaded is not wide enough for printing.	Load media that is at least 24 inches wide.
W-MS-1 - Media Low	Less than 10 feet (3 meters) of media remains (roll-fed), or less than 1 foot (30 cm) of media remains (sheet-fed).	Monitor printing and reload media to avoid running out of media during printing.
W-MS-2 - Media Non-Standard Width	Media loaded may cause head strike.	Continue printing or replace media.
W-MS-4 - Media Advance Switch Detected	Media Advance Switch on back of printer was depressed.	Press the Load or Unload button on the control panel to ensure proper tensioning of the supply and takeup.
W-MS-6 - Media Too Wide	Media loaded is too wide to be printed on.	Replace media. See Appendix A for specifications.
<b>(PC) Printing Calibrations</b>		
W-PC-2 - Media Replaced - Recalibrate	Media advance accuracy may need to be recalibrated.	Run Media Feed Calibration if media type was changed (page 4-9).
W-PC-3 - Head Height Changed - Recalibrate	Change in head height has invalidated calibration.	Run Fill AutoSet (page 4-7).
W-PC-4 - Jets Not Replaced	Not all missing jets could be replaced.	Prime/clean printheads, or choose a higher quality print mode (page 3-4).
W-PC-6 - Uncalibrated Pass Mode	The media advance accuracy is not calibrated in the selected mode.	Run Media Feed Calibration (page 4-9).

Table B-1. Actions and Warnings

Code, Message	Cause	What to Do
W-PC-7 - Platen Width Not Known	Measurement was reset or not performed.	Restart printer to measure platen width.
<b>(PR) Pinch Rollers</b>		
A-PR-1 - Pinch Rollers Up	The pinch rollers are up, in the media release position.	Lower the pinch rollers and lock them into the appropriate slot. Refer to the current media settings for the correct slot. If media is out, run the media load procedure.
<b>(SM) System</b>		
A-SM-1 - Printer Not Personalized	Defective electronics assembly.	Call service provider for replacement electronics.
A-SM-2 - Invalid Software	Defective software.	Call service provider for updated software.
A-SM-3 - Invalid Personalization	Printer personality incorrect.	Call service provider for replacement electronics.
W-SM-1 - Printer Not Reset For Shipping	Defective electronics assembly.	Call service provider for replacement electronics.
W-SM-2 - Head Voltages Not Set	More than eight heads have default voltages.	Run procedure to set head voltages.
<b>(SP) Supply</b>		
A-SP-1 - Supply Too Small	The diameter of the media supply is too small. The printer supports a minimum diameter of 3 inches under tension.	Set the supply tension to idle and continue printing.
A-SP-2 - Supply Too Large	The diameter of the media supply is too large for the capacity of the supply & takeup motors.	Reload the supply with a smaller amount of media (see page A-2 for maximum diameter).
W-SP-1 - Supply Media Out Detection Off	Media-out detection using the supply roll is disabled.	Re-enable Supply Media Out Detection. Be careful to watch for media-out condition.
<b>(SS) Service Station</b>		
A-SS-2 - Could Not Move Wipers Home	Service wipers were not able to move to their home position or the service wiper home sensor is not working.	Use "Home Service Wipers" in the Service menu to move the wipers home. If the problem persists, contact your service provider.
<b>(TU) Take Up</b>		
A-TU-1 - Takeup Full	The media takeup spool is full.	Unload the takeup spool and reload media (page 3-21).
A-TU-2 - Takeup Stall	The takeup motor has stalled.	Check for mechanical interference or binding, overloaded spool, out of balance spool, or failure in electronics or motor.

Table B-1. Actions and Warnings

Code, Message	Cause	What to Do
A-TU-4 - Takeup Too Small	The takeup core is too small. Only 3-inch cores can be used.	Unload the takeup, replace the core and collets with 3-inch size core and collets.
W-TU-1 - Takeup Too Large	The media takeup spool is larger than recommended.	Unload the takeup spool and reload media (page 3-7).
<b>(VN) VideoNet</b>		
W-VN-1 - VideoNet Connection Not Detected	The printer cannot detect a print server.	Connect cable, turn on server, add printer to server.
<b>(VS) Vacuum Sensing</b>		
W-VS-1 - Vacuum Pressure Too Low	The vacuum pressure of the heads is too low.	Call your service provider.
W-VS-2 - Vacuum Pressure Too High	The vacuum pressure of the heads is too high.	Call your service provider.
W-VS-3 Vacuum Pressure Not Recovering	The vacuum pressure of the heads is not recovering after an air purge.	Check vacuum pressure system to ensure it is working properly and check vacuum tubing for leaks.

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